United States Department of Agriculture

Natural Resources Conservation Service

In cooperation with Virginia Polytechnic Institute and State University

Soil Survey of Caroline County, Virginia

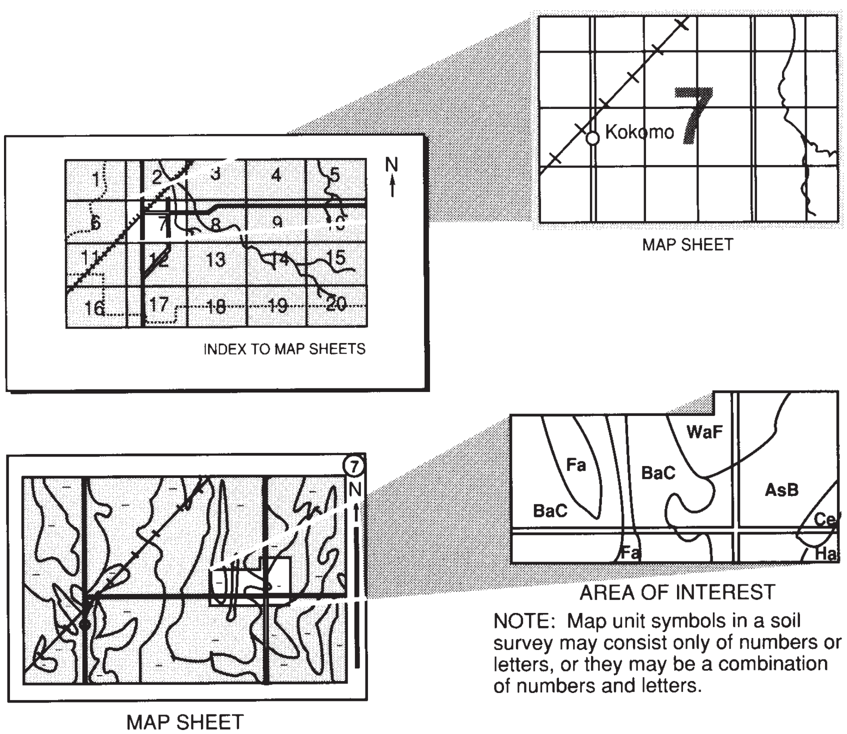
How To Use This Soil Survey

The detailed soil maps can be useful in planning the use and management of small areas.

To find information about your area of interest, locate that area on the **Index to Map Sheets**. Note the number of the map sheet and go to that sheet.

Locate your area of interest on the map sheet. Note the map unit symbols that are in that area. Go to the **Contents**, which lists the map units by symbol and name and shows the page where each map unit is described.

The **Contents** shows which table has data on a specific land use for each detailed soil map unit. Also see the **Contents** for sections of this publication that may address your specific needs.



National Cooperative Soil Survey

This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (formerly the Soil Conservation Service) has leadership for the Federal part of the National Cooperative Soil Survey. This survey was made cooperatively by the Natural Resources Conservation Service and the Virginia Polytechnic Institute and State University. It is part of the technical assistance furnished to the Hanover-Caroline Soil and Water Conservation District. The Caroline County Board of Supervisors provided financial assistance for the survey.

Major fieldwork for this soil survey was completed in 1996. Soil names and descriptions were approved in 1996. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1996. The most current official data are available at http://websoilsurvey.nrcs.usda.gov/app/.

Soil maps in this survey may be copied without permission. Enlargement of these maps, however, could cause misunderstanding of the detail of mapping. If enlarged, maps do not show the small areas of contrasting soils that could have been shown at a larger scale.

Nondiscrimination Statement

Cover Caption

A soybean field in an area of Kempsville-Emporia complex, 2 to 6 percent slopes.

Additional information about the Nation's natural resources is available online from the Natural Resources Conservation Service at http://www.nrcs.usda.gov.

Contents

Issued 2009

Foreword

Soil surveys contain information that affects land use planning in survey areas. They include predictions of soil behavior for selected land uses. The surveys highlight soil limitations, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

Soil surveys are designed for many different users. Farmers, ranchers, foresters, and agronomists can use the surveys to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the surveys to plan land use, select sites for construction, and identify special practices needed to ensure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the surveys to help them understand, protect, and enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. The information in this report is intended to identify soil properties that are used in making various land use or land treatment decisions. Statements made in this report are intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://soils.usda.gov/sqi/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (http://offices.sc.egov.usda.gov/locator/app?agency—nrcs) or your NRCS State Soil Scientist (http://soils.usda.gov/contact/state_offices/).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. The location of each map unit is shown on the detailed soil maps. Each soil in the survey area is described, and information on specific uses is given. Help in using this publication and additional information are available at the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

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State Conservationist
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Soil Survey of
Caroline County, Virginia

By the Virginia Soil Survey Staff, Natural Resources Conservation Service

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United States Department of Agriculture, Natural Resources Conservation Service,
in cooperation with
Virginia Polytechnic Institute and State University

Caroline County is in the mid-eastern part of Virginia (fig. 1). It consists of 315,600 acres. The county is approximately 30 miles northeast of the capital city of Richmond. Bowling Green, Virginia, is the county seat. Dawn, Ladysmith, Ruther Glen, and Chilesburg are also located in Caroline County. In 2000, according to the Bureau of Census, the population of the county was 22,121 (United States Department of Commerce, Census Bureau, 2000).

General Nature of the Survey Area

This section provides general information about the survey area. It describes physiography, relief, and drainage; history; and climate.

Physiography, Relief, and Drainage

Caroline County is mostly in the Southern Coastal Plain Major Land Resource Area. A small section in the western part of the county is in the Southern Piedmont Major Land Resource Area. Elevations range from about 20 feet above sea level to about 270 feet above sea level. The elevation of 20 feet is in an area where the Rappahannock River crosses the Caroline-Essex County line, which is in the Southern Coastal Plain portion of the county. The elevation of 350 feet is in an area in the western part of the county, which is in the Southern Piedmont portion. The county drains mostly through the Rappahannock, Mattaponi, and North Anna Rivers and their tributaries. The land surface is mostly nearly level to gently sloping in the Coastal Plain portion of the county and generally gently sloping to strongly sloping in the Piedmont portion.

History

In 1728, Caroline County was established from the upper portions of Essex, King and Queen, and King William Counties. The county was named for Caroline of Anspach, consort of King George II. Some additional territory from King and Queen County was added in 1742 and 1762. The boundaries have not changed since then. Caroline County is bordered by Spotsylvania County to the northwest, by King George

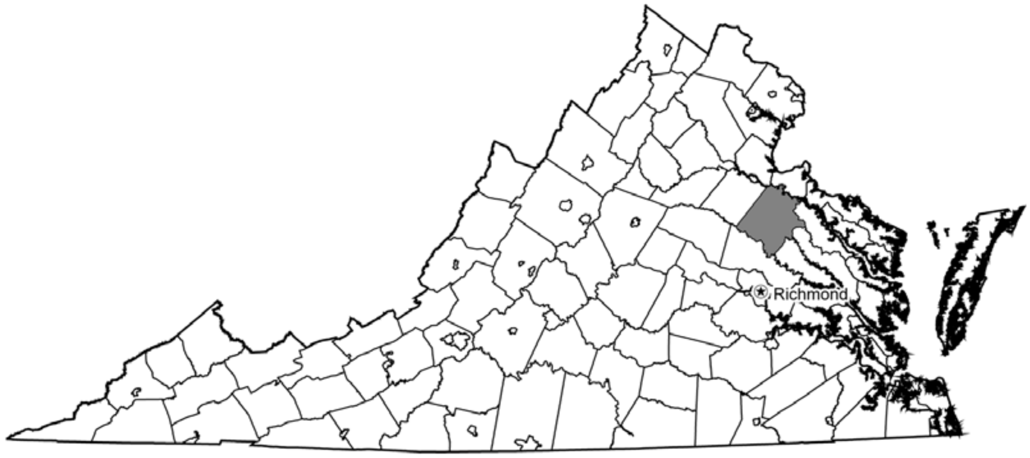

Figure 1.—Location of Caroline County in Virginia.

County to the northeast, by Hanover County to the southwest, and by King William, King and Queen, and Essex Counties to the southeast. Settlers first came to the region in the 1650's because land was inexpensive and the area had access to the deep water of the Rappahannock River. Caroline County was one of the most populated counties in all of Virginia through the 18th century (Caroline County, Virginia Website).

Climate

Table 1 gives data on temperature and precipitation for the survey area as recorded at Corbin, Virginia, in the period 1961 to 1990. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on the length of the growing season.

In winter, the average temperature is 35.4 degrees F and the average daily minimum temperature is 25.3 degrees. The lowest temperature on record, which occurred at Corbin on February 5, 1996, was -11 degrees. In summer, the average temperature is 74.1 degrees and the average daily maximum temperature is 84.9 degrees. The highest temperature, which occurred at Corbin on August 21, 1983, was 104 degrees.

Growing degree days are shown in table 1. They are equivalent to "heat units." During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (50 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

The average annual total precipitation is 42.67 inches. Of this, 26 inches, or about 61 percent, usually falls in April through October. The growing season for most crops falls within this period. The heaviest 1-day rainfall during the period of record was 7.45 inches at Corbin on June 22, 1972. Thunderstorms occur on about 37 days each year, and most occur between May and August.

The average seasonal snowfall is 17.0 inches. The greatest snow depth at any one time during the period of record was 16 inches, recorded on January 26, 1987. On an average, 15 days per year have at least 1 inch of snow on the ground. The heaviest 1-day snowfall on record was 15.0 inches, recorded on March 6, 1962.

The average relative humidity in mid-afternoon is about 53 percent. Humidity is higher at night, and the average at dawn is about 83 percent. The sun shines 68 percent of the time in summer and 55 percent in winter. The prevailing wind is from

the southwest. Average windspeed is highest, around 9 miles per hour, between February to April.

How This Survey Was Made

This survey was made to provide information about the soils and miscellaneous areas in the survey area. The information includes a description of the soils and miscellaneous areas and their location and a discussion of their suitability, limitations, and management for specified uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They dug many holes to study the soil profile, which is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses. Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in the survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through

observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

The descriptions, names, and delineations of the soils in this survey area do not fully agree with those of the soils in adjacent survey areas. Differences are the result of a better knowledge of soils, modifications in series concepts, or variations in the intensity of mapping or in the extent of the soils in the survey areas.

Detailed Soil Map Units

The map units delineated on the detailed soil maps in this survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this section, along with the maps, can be used to determine the suitability and potential of a unit for specific uses. They also can be used to plan the management needed for those uses.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. The contrasting components are mentioned in the map unit descriptions. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives the principal hazards and limitations to be considered in planning for specific uses.

Soils that have profiles that are almost alike make up a *soil series*. All the soils of a series have major horizons that are similar in composition, thickness, and arrangement. The soils of a given series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of

the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Wehadkee silt loam, 0 to 2 percent slopes, frequently flooded, is a phase of the Wehadkee series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes. A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Kempsville-Emporia complex, 0 to 2 percent slopes, is an example.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Pits, gravel, is an example.

Table 4 gives the acreage and proportionate extent of the soils in the survey area. Other tables give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils.

1A—Altavista fine sandy loam, 0 to 2 percent slopes, very rarely flooded

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Stream terrace on coastal plain
Position on the landform: Convex treads
Size of areas: 2 to 110 acres
Shape of areas: Elongated or irregularly oval

Map Unit Composition

Altavista and similar soils: Typically 90 percent, ranging from about 85 to 95 percent

Typical Profile

Surface layer:
0 to 12 inches—brown fine sandy loam

Subsurface layer:
12 to 16 inches—light yellowish brown fine sandy loam

Subsoil:
16 to 20 inches—yellowish brown fine sandy loam
20 to 34 inches—yellowish brown sandy clay loam
34 to 40 inches—brownish yellow sandy loam; strong brown masses of oxidized iron and light gray iron depletions

Substratum:
40 to 65 inches—brownish yellow sand; light gray iron depletions

Minor Components

Dissimilar components:
- Bojac and State soils, which are well drained
- Tomotley soils, which are poorly drained; in more linear or concave landscape positions that are not subject to flooding

Similar components:
- Soils that have more silt; in similar landscape positions

Soil Properties and Qualities

Available water capacity: Moderate (about 6.6 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Moderately well drained
Depth to seasonal water saturation: About 18 to 30 inches
Water table (kind): Apparent
Flooding hazard: Very rare
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Low
Surface fragments: None
Parent material: Alluvium

Use and Management Considerations

Cropland

Suitability: Well suited to corn, soybeans, and wheat; moderately suited to alfalfa hay
- This soil is well suited to cropland.

Pastureland

- This soil is well suited to pasture.

Woodland

Suitability: Well suited to loblolly pine
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- Coarse textured soil layers may slough, thus reducing the efficiency of mechanical planting equipment.
- The coarseness of the soil material may reduce the traction of wheeled harvest equipment and log trucks.
- Coarse textured soil layers increase the maintenance of haul roads and log landings.

Building sites

- The seasonal high water table may restrict the period when excavations can be made.

Septic tank absorption fields

- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.
- Because the excessive permeability limits the proper treatment of the effluent from conventional septic systems, the water table may become polluted.

Local roads and streets

- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of the soil.

Interpretive Groups

Prime farmland: All areas are prime farmland
Land capability class: 2w
Virginia soil management group: B
Hydric soil: No

1B—Altavista fine sandy loam, 2 to 6 percent slopes, very rarely flooded

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Stream terrace on coastal plain
Position on the landform: Convex treads
Size of areas: 2 to 110 acres
Shape of areas: Elongated or irregularly oval

Map Unit Composition

Altavista and similar soils: Typically 90 percent, ranging from about 85 to 95 percent

Typical Profile

Surface layer:
0 to 12 inches—brown fine sandy loam

Subsurface layer:
12 to 16 inches—light yellowish brown fine sandy loam

Subsoil:
16 to 20 inches—yellowish brown fine sandy loam
20 to 34 inches—yellowish brown sandy clay loam
34 to 40 inches—brownish yellow sandy loam; strong brown masses of oxidized iron and light gray iron depletions

Substratum:
40 to 65 inches—brownish yellow sand; light gray iron depletions

Minor Components

Dissimilar components:
- Bojac and State soils, which are well drained
- Tomotley soils, which are poorly drained; in more linear or concave landscape positions that are not subject to flooding

Similar components:
- Soils that have more silt; in similar landscape positions

Soil Properties and Qualities

Available water capacity: Moderate (about 6.6 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Moderately well drained
Depth to seasonal water saturation: About 18 to 30 inches
Water table (kind): Apparent
Flooding hazard: Very rare
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Low
Surface fragments: None
Parent material: Alluvium

Use and Management Considerations

Cropland
Suitability: Well suited to corn, soybeans and wheat; moderately suited to alfalfa hay
- The rate of surface runoff, the erosion hazard, and the amount of nutrient loss are increased because of the slope.

Pastureland
Suitability: Well suited to pasture
- The hazard of erosion, the rate of surface runoff, and the amount of nutrient loss are increased because of the slope.

Woodland
Suitability: Well suited to loblolly pine
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- Coarse textured soil layers may slough, thus reducing the efficiency of mechanical planting equipment.
- The coarseness of the soil material may reduce the traction of wheeled harvest equipment and log trucks.
- Coarse textured soil layers increase the maintenance of haul roads and log landings.

Building sites
- The seasonal high water table may restrict the period when excavations can be made.

Septic tank absorption fields
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.
- Because the excessive permeability limits the proper treatment of the effluent from conventional septic systems, the water table may become polluted.

Local roads and streets
- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of the soil.

Interpretive Groups

Prime farmland: All areas are prime farmland
Land capability class: 2e
Virginia soil management group: B
Hydric soil: No

2B—Appling sandy loam, 2 to 7 percent slopes

Setting

Major land resource area: Southern Piedmont (MLRA 136)
Landform: Piedmont uplands
Position on the landform: Gently sloping broad, convex ridges
Size of areas: 2 to 110 acres
Shape of areas: Broad and irregular

Map Unit Composition

Appling and similar soils: Typically 80 percent, ranging from about 75 to 90 percent

Typical Profile

Surface layer:
0 to 4 inches—light olive brown sandy loam

Subsurface layer:
4 to 10 inches—light yellowish brown sandy loam

Subsoil:
10 to 13 inches—yellowish brown clay loam
13 to 24 inches—strong brown clay loam
24 to 30 inches—strong brown clay
30 to 42 inches—strong brown, yellowish red, and red clay
42 to 60 inches—red clay loam

Substratum:
60 to 72 inches—yellowish red and strong brown sandy loam

Minor Components

Dissimilar components:
- Helena soils, which are moderately well drained

Similar components:
- Cecil soils, which are redder

Soil Properties and Qualities

Available water capacity: Moderate (about 8.9 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Medium
Surface fragments: None
Parent material: Residuum weathered from granite and gneiss

Use and Management Considerations

Cropland
Suitability: Moderately suited to corn, soybeans, and alfalfa hay; well suited to wheat
- The rate of surface runoff, the erosion hazard, and the amount of nutrient loss are increased because of the slope.
- The high clay content restricts the rooting depth of crops.

Pastureland
Suitability: Well suited to pasture
- The hazard of erosion, the rate of surface runoff, and the amount of nutrient loss are increased because of the slope.

Woodland
Suitability: Moderately suited to loblolly pine and yellow-poplar
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- The slope may restrict the use of some mechanical planting equipment.

- Coarse textured soil layers may slough, thus reducing the efficiency of mechanical planting equipment.
- The coarseness of the soil material may reduce the traction of wheeled harvest equipment and log trucks.
- Coarse textured soil layers increase the maintenance of haul roads and log landings.

Building sites
- The high content of clay in the subsurface layer increases the difficulty of digging, filling, and compacting the soil material in shallow excavations.

Septic tank absorption fields
- Because the excessive permeability limits the proper treatment of the effluent from conventional septic systems, the water table may become polluted.
- This soil is well suited to septic tank absorption fields.

Local roads and streets
- The low strength may cause structural damage to local roads and streets.

Interpretive Groups

Prime farmland: All areas are prime farmland
Land capability class: 2e
Virginia soil management group: V
Hydric soil: No

2C—Appling sandy loam, 7 to 15 percent slopes

Setting

Major land resource area: Southern Piedmont (MLRA 136)
Landform: Piedmont uplands
Position on the landform: Strongly sloping narrow, winding ridges and short to moderately long, complex side slopes
Size of areas: 2 to 110 acres
Shape of areas: Broad and irregular

Map Unit Composition

Appling and similar soils: Typically 90 percent, ranging from about 85 to 95 percent

Typical Profile

Surface layer:
0 to 4 inches—light olive brown sandy loam

Subsurface layer:
4 to 10 inches—light yellowish brown sandy loam

Subsoil:
10 to 13 inches—yellowish brown clay loam
13 to 24 inches—strong brown clay loam
24 to 30 inches—strong brown clay
30 to 42 inches—strong brown, yellowish red, and red clay
42 to 60 inches—red clay loam

Substratum:
60 to 72 inches—yellowish red and strong brown sandy loam

Minor Components

Dissimilar components:
- Helena soils, which are moderately well drained

Similar components:
- Cecil soils, which are redder

Soil Properties and Qualities

Available water capacity: Moderate (about 8.9 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Medium
Surface fragments: None
Parent material: Residuum weathered from granite and gneiss

Use and Management Considerations

Cropland
Suitability: Moderately suited to corn, soybeans, wheat, and alfalfa hay
- The rate of surface runoff, the erosion hazard, and the amount of nutrient loss are increased because of the slope.
- The high clay content restricts the rooting depth of crops.

Pastureland
Suitability: Well suited to pasture
- The hazard of erosion, the rate of surface runoff, and the amount of nutrient loss are increased because of the slope.

Woodland
Suitability: Moderately suited to loblolly pine and yellow-poplar
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- The slope may restrict the use of some mechanical planting equipment.
- Coarse textured soil layers may slough, thus reducing the efficiency of mechanical planting equipment.
- The coarseness of the soil material may reduce the traction of wheeled harvest equipment and log trucks.
- Coarse textured soil layers increase the maintenance of haul roads and log landings.

Building sites
- The slope influences the use of machinery and the amount of excavation required.
- The high content of clay in the subsurface layer increases the difficulty of digging, filling, and compacting the soil material in shallow excavations.

Septic tank absorption fields
- The slope limits the proper treatment of effluent from conventional septic systems.

Local roads and streets

- The low strength may cause structural damage to local roads and streets.
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 3e
Virginia soil management group: V
Hydric soil: No

3A—Bama sandy loam, 0 to 2 percent slopes

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Marine terrace on coastal plain
Position on the landform: Uplands
Size of areas: 3 to 20 acres
Shape of areas: Elongated or irregularly oval

Map Unit Composition

Bama and similar soils: Typically 90 percent, ranging from about 85 to 95 percent

Typical Profile

Surface layer:
0 to 4 inches—dark grayish brown sandy loam

Subsurface layer:
4 to 13 inches—light yellowish brown loam

Subsoil:
13 to 19 inches—strong brown loam
19 to 26 inches—yellowish red loam
26 to 50 inches—yellowish red sandy clay loam; red masses of oxidized iron
50 to 70 inches—yellowish red sandy clay loam; pink masses of oxidized iron

Minor Components

Dissimilar components:

- Slagle soils, which are moderately well drained and have gray iron depletions in the upper part of the subsoil; in more linear or concave landscape positions

Similar components:

- Emporia soils, which have gray iron depletions in the lower part of the subsoil; in similar landscape positions
- Kempsville soils, which have a decrease in clay content within a depth of 60 inches; in similar landscape positions
- Suffolk soils, which have thinner sola; in similar landscape positions

Soil Properties and Qualities

Available water capacity: Moderate (about 8.6 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet

Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Low
Surface fragments: None
Parent material: Loamy marine deposits

Use and Management Considerations

Cropland
Suitability: Moderately suited to corn; well suited to soybeans, wheat, and alfalfa hay
- Soil crusting results in a decrease in water infiltration and hinders the emergence of seedlings.

Pastureland
- This soil is well suited to pasture.

Woodland
Suitability: Moderately suited to loblolly pine, southern red oak, yellow-poplar, and sweetgum
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- The low strength interferes with the construction of haul roads and log landings.
- The low strength may create unsafe conditions for log trucks.

Building sites
- This soil is well suited to building sites.

Septic tank absorption fields
- This soil is well suited to septic tank absorption fields.

Local roads and streets
- This soil is well suited to local roads and streets.

Interpretive Groups

Prime farmland: All areas are prime farmland
Land capability class: 1
Virginia soil management group: R
Hydric soil: No

3B—Bama sandy loam, 2 to 6 percent slopes

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Marine terrace on coastal plain
Position on the landform: Uplands
Size of areas: 3 to 20 acres
Shape of areas: Elongated or irregularly oval

Map Unit Composition

Bama and similar soils: Typically 90 percent, ranging from about 85 to 95 percent

Typical Profile

Surface layer:
0 to 4 inches—dark grayish brown sandy loam

Subsurface layer:
4 to 13 inches—light yellowish brown loam

Subsoil:
13 to 19 inches—strong brown loam
19 to 26 inches—yellowish red loam
26 to 50 inches—yellowish red sandy clay loam; red masses of oxidized iron
50 to 70 inches—yellowish red sandy clay loam; pink masses of oxidized iron

Minor Components

Dissimilar components:
- Slagle soils, which are moderately well drained and have gray iron depletions in the upper part of the subsoil; in more linear or concave landscape positions

Similar components:
- Emporia soils, which have gray iron depletions in the lower part of the subsoil; in similar landscape positions
- Kempsville soils, which have a decrease in clay content within a depth of 60 inches; in similar landscape positions
- Suffolk soils, which have thinner sola; in similar landscape positions

Soil Properties and Qualities

Available water capacity: Moderate (about 8.6 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Low
Surface fragments: None
Parent material: Loamy marine deposits

Use and Management Considerations

Cropland
Suitability: Moderately suited to corn and alfalfa hay; well suited to soybeans and wheat
- The rate of surface runoff, the erosion hazard, and the amount of nutrient loss are increased because of the slope.
- Soil crusting results in a decrease in water infiltration and hinders the emergence of seedlings.

Pastureland
Suitability: Well suited to pasture
- The hazard of erosion, the rate of surface runoff, and the amount of nutrient loss are increased because of the slope.

Woodland
Suitability: Moderately suited to loblolly pine, southern red oak, yellow-poplar, and sweetgum
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.

- The low strength interferes with the construction of haul roads and log landings.
- The low strength may create unsafe conditions for log trucks.

Building sites
- This soil is well suited to building sites.

Septic tank absorption fields
- This soil is well suited to septic tank absorption fields.

Local roads and streets
- This soil is well suited to local roads and streets.

Interpretive Groups

Prime farmland: All areas are prime farmland
Land capability class: 2e
Virginia soil management group: R
Hydric soil: No

4A—Bibb-Chastain complex, 0 to 2 percent slopes, frequently flooded

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Flood plain on coastal plain
Position on the landform: Low linear or concave surfaces
Size of areas: 2 to 15 acres
Shape of areas: Oval or irregular

Map Unit Composition

Bibb and similar soils: Typically 75 percent, ranging from about 70 to 85 percent
Chastain and similar soils: Typically 20 percent, ranging from about 15 to 35 percent

Typical Profile

Bibb
Surface layer:
0 to 4 inches—grayish brown loamy sand
4 to 15 inches—grayish brown loamy sand; gray iron depletions and yellowish red masses of oxidized iron

Substratum:
15 to 42 inches—gray sandy loam; yellowish brown masses of oxidized iron
42 to 65 inches—gray loamy sand; yellowish brown masses of oxidized iron

Chastain
Surface layer:
0 to 2 inches—dark grayish brown silt loam
2 to 13 inches—dark gray silt loam; reddish brown and brown masses of oxidized iron

Subsoil:
13 to 24 inches—dark gray clay loam; reddish brown masses of oxidized iron
24 to 36 inches—dark gray clay loam; reddish brown and strong brown masses of oxidized iron

Substratum:
36 to 80 inches—dark gray sand; strong brown masses of oxidized iron

Minor Components

Dissimilar components:
- Myatt soils, which have a regular increase and decrease in clay content; on low stream terrace treads

Soil Properties and Qualities

Available water capacity: Moderate (about 6.7 inches)
Slowest saturated hydraulic conductivity: Bibb—moderately high (about 0.57 in/hr); Chastain—moderately low (about 0.06 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Poorly drained
Depth to seasonal water saturation: About 0 to 12 inches
Water table (kind): Apparent
Flooding hazard: Frequent
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Very high
Surface fragments: None
Parent material: Alluvium

Use and Management Considerations

Cropland
- These soils are unsuited to cropland.

Pastureland
Suitability: Poorly suited to pasture
- Flooding may damage pastures.
- The seasonal high water table can affect equipment use, grazing patterns, and the viability of grass and legume species.

Woodland
Suitability: Moderately suited to loblolly pine and sweetgum
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should focus on streamside management zones and stream crossings and should include general adherence to all applicable best management practices.
- Flooding may damage haul roads.
- Flooding restricts the safe use of roads by log trucks.
- Soil wetness may limit the use of log trucks.
- Coarse textured soil layers may slough, thus reducing the efficiency of mechanical planting equipment.
- The coarseness of the soil material may reduce the traction of wheeled harvest equipment and log trucks.
- Coarse textured soil layers increase the maintenance of haul roads and log landings.
- The low strength interferes with the construction of haul roads and log landings.
- The low strength may create unsafe conditions for log trucks.

Building sites
- Flooding is a limitation affecting building site development.
- The seasonal high water table may restrict the period when excavations can be made.

Septic tank absorption fields
- Flooding is a limitation affecting septic tank absorption fields.
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.

Local roads and streets
- Flooding may damage local roads and streets.
- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of the soil.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 6w
Virginia soil management group: Bibb—EE; Chastain—LL
Hydric soils: Yes

5B—Bojac sandy loam, 0 to 6 percent slopes, very rarely flooded

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Stream terrace on coastal plain
Position on the landform: Convex treads
Size of areas: 3 to 40 acres
Shape of areas: Broad and irregular

Map Unit Composition

Bojac and similar soils: Typically 85 percent, ranging from about 80 to 90 percent

Typical Profile

Surface layer:
0 to 6 inches—light yellowish brown sandy loam

Subsurface layer:
6 to 12 inches—yellowish brown fine sandy loam

Subsoil:
12 to 40 inches—strong brown fine sandy loam
40 to 46 inches—reddish yellow fine sandy loam

Substratum:
46 to 65 inches—very pale brown fine sand

Minor Components

Dissimilar components:
- Tarboro soils, which are somewhat excessively drained and sandy throughout; in slightly higher landscape positions
- Tomotley soils, which are poorly drained; in linear or concave landscape positions

Similar components:
- State soils, which have more clay in the subsoil; in similar landscape positions

Soil Properties and Qualities

Available water capacity: Moderate (about 6.2 inches)
Slowest saturated hydraulic conductivity: High (about 1.98 in/hr)

Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Well drained
Depth to seasonal water saturation: About 48 to 72 inches
Water table (kind): Apparent
Flooding hazard: Very rare
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Very low
Surface fragments: None
Parent material: Loamy marine deposits

Use and Management Considerations

Cropland
Suitability: Moderately suited to corn; poorly suited to soybeans; well suited to wheat; not suited to alfalfa hay
- The rate of surface runoff, the erosion hazard, and the amount of nutrient loss are increased because of the slope.

Pastureland
Suitability: Well suited to pasture
- The hazard of erosion, the rate of surface runoff, and the amount of nutrient loss are increased because of the slope.

Woodland
Suitability: Moderately suited to loblolly pine, southern red oak, and sweetgum
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- This soil is well suited to haul roads and log landings.

Building sites
- The seasonal high water table may restrict the period when excavations can be made.

Septic tank absorption fields
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.
- Because the excessive permeability limits the proper treatment of the effluent from conventional septic systems, the water table may become polluted.

Local roads and streets
- This soil is well suited to local roads and streets.

Interpretive Groups

Prime farmland: All areas are prime farmland
Land capability class: 2e
Virginia soil management group: DD
Hydric soil: No

6B—Cecil sandy loam, 2 to 7 percent slopes

Setting

Major land resource area: Southern Piedmont (MLRA 136)
Landform: Piedmont uplands

Position on the landform: Moderately sloping narrow, convex ridges and moderately long, complex side slopes
Size of areas: 2 to 100 acres
Shape of areas: Irregular

Map Unit Composition

Cecil and similar soils: Typically 90 percent, ranging from about 85 to 95 percent

Typical Profile

Surface layer:
0 to 1 inch—dark grayish brown sandy loam

Subsurface layer:
1 to 9 inches—yellowish brown sandy loam

Subsoil:
9 to 14 inches—yellowish red sandy clay loam
14 to 26 inches—red clay; few yellowish brown mottles
26 to 39 inches—red clay; few dark yellowish brown mottles
39 to 63 inches—red clay; few yellowish brown and few yellowish red mottles

Substratum:
63 to 83 inches—red, strong brown, and white loam

Minor Components

Dissimilar components:
- Helena soils, which are moderately well drained

Similar components:
- Appling soils, which are yellower
- Rion soils, which have less clay

Soil Properties and Qualities

Available water capacity: Moderate (about 8.3 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Medium
Surface fragments: None
Parent material: Residuum weathered from granite and gneiss

Use and Management Considerations

Cropland
Suitability: Moderately suited to corn, alfalfa hay, and soybeans; well suited to wheat
- The rate of surface runoff, the erosion hazard, and the amount of nutrient loss are increased because of the slope.
- The high clay content restricts the rooting depth of crops.
- Soil crusting results in a decrease in water infiltration and hinders the emergence of seedlings.

Pastureland

Suitability: Well suited to pasture

- The hazard of erosion, the rate of surface runoff, and the amount of nutrient loss are increased because of the slope.

Woodland

Suitability: Moderately suited to loblolly pine, southern red oak, yellow-poplar, and sweetgum; well suited to northern red oak

- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- The slope may restrict the use of some mechanical planting equipment.
- This soil is well suited to haul roads and log landings.
- This soil is well suited to equipment operations.

Building sites

- The high content of clay in the subsurface layer increases the difficulty of digging, filling, and compacting the soil material in shallow excavations.

Septic tank absorption fields

- This soil is well suited to septic tank absorption fields.

Local roads and streets

- The low strength may cause structural damage to local roads and streets.

Interpretive Groups

Prime farmland: All areas are prime farmland
Land capability class: 2e
Virginia soil management group: X
Hydric soil: No

7A—Chastain loam, 0 to 2 percent slopes, ponded

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Swamp on coastal plain
Position on the landform: Low linear or concave surfaces
Size of areas: 2 to 15 acres
Shape of areas: Oval or irregular

Map Unit Composition

Chastain and similar soils: Typically 95 percent, ranging from about 90 to 95 percent

Typical Profile

Surface layer:
0 to 2 inches—dark grayish brown silt loam
2 to 13 inches—dark gray silt loam; reddish brown and brown masses of oxidized iron

Subsoil:
13 to 24 inches—dark gray clay loam; reddish brown masses of oxidized iron
24 to 36 inches—dark gray clay loam; reddish brown and strong brown masses of oxidized iron

Substratum:
36 to 80 inches—dark gray sand; strong brown masses of oxidized iron

Minor Components

Dissimilar components:
- Myatt soils, which have a regular increase and decrease in clay content; on low stream terrace treads

Soil Properties and Qualities

Available water capacity: Moderate (about 6.3 inches)
Slowest saturated hydraulic conductivity: Moderately low (about 0.06 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Poorly drained
Depth to seasonal water saturation: About 0 inches
Water table (kind): Apparent
Flooding hazard: Frequent
Ponding hazard: Frequent
Depth of ponding: 0.0 to 3.0 feet
Shrink-swell potential: Low
Runoff class: Negligible
Surface fragments: None
Parent material: Alluvium

Use and Management Considerations

Cropland
- This soil is unsuited to cropland.

Pastureland
- This soil is unsuited to pastureland.

Woodland
Suitability: Moderately suited to sweetgum
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should focus on streamside management zones and stream crossings and should include general adherence to all applicable best management practices.
- Flooding may damage haul roads.
- Flooding and ponding restrict the safe use of roads by log trucks.
- Soil wetness may limit the use of log trucks.
- The low strength interferes with the construction of haul roads and log landings.
- The low strength may create unsafe conditions for log trucks.

Building sites
- This soil is unsuited to building sites.
- Flooding and ponding are limitations affecting building site development.
- The seasonal high water table may restrict the period when excavations can be made.

Septic tank absorption fields
- This soil is unsuited to septic tank absorption fields.
- Flooding and ponding are limitations affecting septic tank absorption fields.
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.

Local roads and streets
- Flooding may damage local roads and streets.

- Ponding affects the ease of excavation and grading and limits the bearing capacity of the soil.
- The low strength is unfavorable for supporting heavy loads.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 6w
Virginia soil management group: LL
Hydric soil: Yes

8A—Chewacla silt loam, 0 to 2 percent slopes, occasionally flooded

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Coastal Plain and Piedmont flood plains
Position on the landform: Nearly level low-lying flood plains
Size of areas: 2 to 150 acres
Shape of areas: Elongated

Map Unit Composition

Chewacla and similar soils: Typically 75 percent, ranging from about 70 to 85 percent

Typical Profile

Surface layer:
0 to 5 inches—dark brown silt loam

Subsoil:
5 to 13 inches—brown clay loam
13 to 26 inches—brown, pale brown, and light brownish gray sandy clay loam
26 to 40 inches—brown, light brownish gray, and weak red clay loam

Substratum:
40 to 60 inches—yellowish brown, light brownish gray, and black silty clay loam

Minor Components

Dissmilar components:
- Riverview soils, which are well drained; in higher convex landscape positions

Similar components:
- Soils that have less clay; in similar landscape positions
- Soils that have less than 50 percent gray iron depletions in the upper part of the subsoil; in higher linear or concave areas

Soil Properties and Qualities

Available water capacity: High (about 9.3 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.20 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Somewhat poorly drained
Depth to seasonal water saturation: About 6 to 18 inches
Water table (kind): Apparent
Flooding hazard: Occasional

Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Very high
Surface fragments: None
Parent material: Alluvium

Use and Management Considerations

Cropland
Suitability: Well suited to corn, soybeans, and wheat; not suited to alfalfa hay
- The risk of compaction increases when the soil is wet.
- Soil crusting results in a decrease in water infiltration and hinders the emergence of seedlings.
- Flooding may damage crops.
- The seasonal high water table restricts equipment operation, decreases the viability of crops, and interferes with the planting and harvesting of crops.

Pastureland
Suitability: Well suited to pasture
- Flooding may damage pastures.
- The seasonal high water table can affect equipment use, grazing patterns, and the viability of grass and legume species.
- Compaction may occur when the soil is wet.

Woodland
Suitability: Well suited to loblolly pine; moderately suited to yellow-poplar and sweetgum
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should focus on streamside management zones and stream crossings and should include general adherence to all applicable best management practices.
- Flooding may damage haul roads.
- Flooding restricts the safe use of roads by log trucks.
- Soil wetness may limit the use of log trucks.
- The low strength interferes with the construction of haul roads and log landings.
- The low strength may create unsafe conditions for log trucks.

Building sites
- Flooding is a limitation affecting building site development.
- The seasonal high water table may restrict the period when excavations can be made.

Septic tank absorption fields
- Flooding is a limitation affecting septic tank absorption fields.
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.

Local roads and streets
- Flooding may damage local roads and streets.
- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of the soil.

Interpretive Groups

Prime farmland: Prime farmland if drained
Land capability class: 4w
Virginia soil management group: I
Hydric soil: No

9C—Helena-Appling complex, 2 to 15 percent slopes

Setting

Major land resource area: Southern Piedmont (MLRA 136)
Landform: Piedmont uplands
Position on the landform: Strongly sloping narrow, winding ridges and short to moderately long, complex side slopes
Size of areas: 2 to 110 acres
Shape of areas: Broad and irregular

Map Unit Composition

Helena and similar soils: Typically 65 percent, ranging from about 60 to 75 percent
Appling and similar soils: Typically 20 percent, ranging from about 15 to 35 percent

Typical Profile

Helena
Surface layer:
0 to 8 inches—yellowish brown sandy loam

Subsoil:
8 to 15 inches—yellowish brown sandy clay loam
15 to 30 inches—yellowish brown sandy clay; red masses of oxidized iron
30 to 40 inches—yellowish brown sandy clay; light gray iron depletions
40 to 50 inches—strong brown and brownish yellow clay loam; light gray iron depletions

Substratum:
50 to 60 inches—yellowish brown sandy clay loam; light gray iron depletions

Appling
Surface layer:
0 to 4 inches—light olive brown sandy loam

Subsurface layer:
4 to 10 inches—light yellowish brown sandy loam

Subsoil:
10 to 13 inches—yellowish brown clay loam
13 to 24 inches—strong brown clay loam
24 to 30 inches—strong brown clay
30 to 42 inches—strong brown, yellowish red, and red clay
42 to 60 inches—red clay loam

Substratum:
60 to 72 inches—yellowish red and strong brown sandy loam

Minor Components

Dissimilar components:
- Rion soils, which have less clay

Similar components:
- Cecil soils, which are redder

Soil Properties and Qualities

Available water capacity: Helena—moderate (about 7.8 inches); Appling—moderate (about 8.9 inches)

Slowest saturated hydraulic conductivity: Helena—moderately low (about 0.06 in/hr); Appling—moderately high (about 0.57 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Helena—moderately well drained; Appling—well drained
Depth to seasonal water saturation: Helena—about 12 to 30 inches; Appling—more than 6 feet
Water table (kind): Helena—perched
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Helena—high; Appling—low
Runoff class: Medium
Surface fragments: None
Parent material: Residuum weathered from granite and gneiss

Use and Management Considerations

Cropland

Suitability: Moderately suited to corn, soybeans, and wheat; not suited to alfalfa hay
- The rate of surface runoff, the erosion hazard, and the amount of nutrient loss are increased because of the slope.
- The high clay content restricts the rooting depth of crops.
- The seasonal high water table restricts equipment operation, decreases the viability of crops, and interferes with the planting and harvesting of crops.

Pastureland

Suitability: Moderately suited to pasture
- The hazard of erosion, the rate of surface runoff, and the amount of nutrient loss are increased because of the slope.

Woodland

Suitability: Moderately suited to loblolly pine
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- The slope may restrict the use of some mechanical planting equipment.
- Coarse textured soil layers may slough, thus reducing the efficiency of mechanical planting equipment.
- The coarseness of the soil material may reduce the traction of wheeled harvest equipment and log trucks.
- Coarse textured soil layers increase the maintenance of haul roads and log landings.

Building sites

- The seasonal high water table may restrict the period when excavations can be made.
- The slope influences the use of machinery and the amount of excavation required.
- Shrinking and swelling of the soil may crack foundations and basement walls.
- The high content of clay in the subsurface layer increases the difficulty of digging, filling, and compacting the soil material in shallow excavations.

Septic tank absorption fields

- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.

- The restricted permeability limits the absorption and proper treatment of the effluent from conventional septic systems.
- The slope limits the proper treatment of effluent from conventional septic systems.

Local roads and streets
- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of the soil.
- Because of shrinking and swelling, the use of these soils as base material for local roads and streets is restricted.
- The low strength is unfavorable for supporting heavy loads.
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 3e
Virginia soil management group: Helena—KK; Appling—V
Hydric soils: No

10E—Kempsville-Emporia-Remlik complex, 15 to 50 percent slopes

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Marine terrace on coastal plain
Position on the landform: Moderately steep to very steep side slopes
Size of areas: 5 to 600 acres
Shape of areas: Irregular

Map Unit Composition

Kempsville and similar soils: Typically 45 percent, ranging from about 40 to 55 percent
Emporia and similar soils: Typically 25 percent, ranging from about 20 to 35 percent
Remlik and similar soils: Typically 20 percent, ranging from about 15 to 25 percent

Typical Profile

Kempsville
Surface layer:
0 to 3 inches—dark grayish brown sandy loam

Subsurface layer:
3 to 19 inches—light reddish brown sandy loam

Subsoil:
19 to 29 inches—yellowish brown sandy clay loam
29 to 37 inches—yellowish brown sandy clay loam; pale brown and common strong brown mottles
37 to 65 inches—yellowish brown sandy clay; pale brown and common strong brown mottles

Substratum:
65 to 150 inches—yellowish brown, gray, and red sandy clay loam; plinthite nodules
150 to 234 inches—red sand

Emporia
Surface layer:
0 to 6 inches—grayish brown sandy loam

Subsurface layer:
6 to 12 inches—light yellowish brown sandy loam

Subsoil:
12 to 22 inches—yellowish brown loam; light yellowish brown masses of oxidized iron
22 to 36 inches—yellowish brown loam; strong brown and very pale brown masses of oxidized iron
36 to 42 inches—yellowish brown loam; very pale brown masses of oxidized iron
42 to 62 inches—brownish yellow, strong brown, pinkish gray, and red sandy clay loam

Remlik
Surface layer:
0 to 4 inches—brown loamy sand

Subsurface layer:
4 to 22 inches—light yellowish brown loamy sand

Subsoil:
22 to 38 inches—strong brown sandy clay loam
38 to 70 inches—strong brown sandy loam

Minor Components

Dissimilar components:
- Bibb soils, which are poorly drained and subject to flooding; on narrow bottoms along drainageways and small streams

Similar components:
- Suffolk soils, which are well drained and similar to Rumford soils but have more clay in the subsoil than Rumford soils; in similar landscape positions
- Slagle soils, which have more clay in the subsoil than Emporia soils; in similar landscape positions
- Soils that have a cobbly or gravelly surface layer; in similar landscape positions

Soil Properties and Qualities

Available water capacity: Kempsville—moderate (about 8.2 inches); Emporia—moderate (about 8.8 inches); Remlik—moderate (about 6.2 inches)
Slowest saturated hydraulic conductivity: Kempsville—moderately high (about 0.20 in/hr); Emporia—moderately low (about 0.01 in/hr); Remlik—moderately high (about 0.57 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Well drained
Depth to seasonal water saturation: Kempsville—more than 6 feet; Emporia—about 36 to 54 inches; Remlik—about 48 to 72 inches
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Medium
Surface fragments: None
Parent material: Loamy marine deposits

Use and Management Considerations

Cropland
- These soils are unsuited to cropland.

Pastureland
- These soils are unsuited to pastureland.

Woodland

Suitability: Moderately suited to loblolly pine, southern red oak, yellow-poplar, and sweetgum

- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- The slope poses safety hazards and creates a potential for erosion during the construction of haul roads and log landings.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks and harvesting equipment.
- Because of the slope, the use of equipment for preparing sites for planting and seeding is restricted.
- The slope makes the use of mechanical planting equipment impractical.
- Coarse textured soil layers may slough, thus reducing the efficiency of mechanical planting equipment.
- The coarseness of the soil material may reduce the traction of wheeled harvest equipment and log trucks.
- Coarse textured soil layers increase the maintenance of haul roads and log landings.
- The low strength interferes with the construction of haul roads and log landings.

Building sites

- The seasonal high water table may restrict the period when excavations can be made.
- The slope influences the use of machinery and the amount of excavation required.
- The high content of sand or gravel in the soil increases sloughing and causes cutbanks to be more susceptible to caving.

Septic tank absorption fields

- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.
- The slope limits the proper treatment of effluent from conventional septic systems.

Local roads and streets

- Because of shrinking and swelling, the use of these soils as base material for local roads and streets is restricted.
- The low strength is unfavorable for supporting heavy loads.
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 6e
Virginia soil management group: Kempsville—S; Emporia—R; Remlik—DD
Hydric soils: No

11A—Kempsville-Emporia complex, 0 to 2 percent slopes

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Marine terrace on coastal plain
Position on the landform: Nearly level convex areas on summits and shoulders
Size of areas: 5 to 150 acres
Shape of areas: Irregular

Map Unit Composition

Kempsville and similar soils: Typically 70 percent, ranging from about 65 to 75 percent
Emporia and similar soils: Typically 30 percent, ranging from about 25 to 40 percent

Typical Profile

Kempsville
Surface layer:
0 to 3 inches—dark grayish brown sandy loam

Subsurface layer:
3 to 19 inches—light reddish brown sandy loam

Subsoil:
19 to 29 inches—yellowish brown sandy clay loam
29 to 37 inches—yellowish brown sandy clay loam; pale brown and common strong brown mottles
37 to 65 inches—yellowish brown sandy clay; pale brown and common strong brown mottles

Substratum:
65 to 150 inches—yellowish brown, gray, and red sandy clay loam; plinthite nodules
150 to 234 inches—red sand

Emporia
Surface layer:
0 to 6 inches—grayish brown sandy loam

Subsurface layer:
6 to 12 inches—light yellowish brown sandy loam

Subsoil:
12 to 22 inches—yellowish brown loam; light yellowish brown masses of oxidized iron
22 to 36 inches—yellowish brown loam; strong brown and very pale brown masses of oxidized iron
36 to 42 inches—yellowish brown loam; very pale brown masses of oxidized iron
42 to 62 inches—brownish yellow, strong brown, pinkish gray, and red sandy clay loam

Minor Components

Dissimilar components:
- Suffolk soils, which are well drained and have coarse underlying material within a depth of 50 inches; in similar landscape positions

Similar components:
- Slagle soils, which are moderately well drained; in concave landscape positions

Soil Properties and Qualities

Available water capacity: Kempsville—moderate (about 8.2 inches); Emporia—moderate (about 8.8 inches)
Slowest saturated hydraulic conductivity: Kempsville—moderately high (about 0.20 in/hr); Emporia—moderately low (about 0.01 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Well drained
Depth to seasonal water saturation: Kempsville—more than 6 feet; Emporia—about 36 to 54 inches
Flooding hazard: None
Ponding hazard: None

Shrink-swell potential: Low
Runoff class: Medium
Surface fragments: None
Parent material: Loamy marine deposits

Use and Management Considerations

Cropland
- These soils are moderately suited to corn, well suited to soybeans and wheat, and not suited to alfalfa hay.

Pastureland
- These soils are well suited to pastureland.

Woodland
Suitability: Moderately suited to loblolly pine, southern red oak, yellow-poplar, and sweetgum
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- These soils are well suited to haul roads and log landings.
- These soils are well suited to equipment operations.

Building sites
- The seasonal high water table may restrict the period when excavations can be made.

Septic tank absorption fields
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.

Local roads and streets
- Because of shrinking and swelling, the use of these soils as base material for local roads and streets is restricted.
- The low strength is unfavorable for supporting heavy loads.

Interpretive Groups

Prime farmland: All areas are prime farmland
Land capability class: 1
Virginia soil management group: Kempsville—S; Emporia—R
Hydric soils: No

11B—Kempsville-Emporia complex, 2 to 6 percent slopes

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Marine terrace on coastal plain
Position on the landform: Gently sloping convex areas on summits and shoulders
Size of areas: 5 to 150 acres
Shape of areas: Irregular

Map Unit Composition

Kempsville and similar soils: Typically 60 percent, ranging from about 55 to 75 percent
Emporia and similar soils: Typically 35 percent, ranging from about 30 to 45 percent

Typical Profile

Kempsville
Surface layer:
0 to 3 inches—dark grayish brown sandy loam

Subsurface layer:
3 to 19 inches—light reddish brown sandy loam

Subsoil:
19 to 29 inches—yellowish brown sandy clay loam
29 to 37 inches—yellowish brown sandy clay loam; pale brown and common strong brown mottles
37 to 65 inches—yellowish brown sandy clay; pale brown and common strong brown mottles

Substratum:
65 to 150 inches—yellowish brown, gray, and red sandy clay loam; plinthite nodules
150 to 234 inches—red sand

Emporia
Surface layer:
0 to 6 inches—grayish brown sandy loam

Subsurface layer:
6 to 12 inches—light yellowish brown sandy loam

Subsoil:
12 to 22 inches—yellowish brown loam; light yellowish brown masses of oxidized iron
22 to 36 inches—yellowish brown loam; strong brown and very pale brown masses of oxidized iron
36 to 42 inches—yellowish brown loam; very pale brown masses of oxidized iron
42 to 62 inches—brownish yellow, strong brown, pinkish gray, and red sandy clay loam

Minor Components

Dissimilar components:
- Suffolk soils, which are well drained and have coarse underlying material within a depth of 50 inches; in similar landscape positions

Similar components:
- Slagle soils, which are moderately well drained; in concave landscape positions

Soil Properties and Qualities

Available water capacity: Kempsville—moderate (about 8.2 inches); Emporia—moderate (about 8.8 inches)
Slowest saturated hydraulic conductivity: Kempsville—moderately high (about 0.20 in/hr); Emporia—moderately low (about 0.01 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Well drained
Depth to seasonal water saturation: Kempsville—more than 6 feet; Emporia—about 36 to 54 inches
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Medium
Surface fragments: None
Parent material: Loamy marine deposits

Use and Management Considerations

Cropland

Suitability: Moderately suited to corn; well suited to soybeans and wheat; not suited to alfalfa hay

- The rate of surface runoff, the erosion hazard, and the amount of nutrient loss are increased because of the slope.

Pastureland

Suitability: Well suited to pasture

- The hazard of erosion, the rate of surface runoff, and the amount of nutrient loss are increased because of the slope.

Woodland

Suitability: Moderately suited to loblolly pine, southern red oak, yellow-poplar, and sweetgum

- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- These soils are well suited to haul roads and log landings.
- These soils are well suited to equipment operations.

Building sites

- The seasonal high water table may restrict the period when excavations can be made.

Septic tank absorption fields

- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.

Local roads and streets

- Because of shrinking and swelling, the use of these soils as base material for local roads and streets is restricted.
- The low strength is unfavorable for supporting heavy loads.

Interpretive Groups

Prime farmland: All areas are prime farmland
Land capability class: 2e
Virginia soil management group: Kempsville—S; Emporia—R
Hydric soils: No

11C—Kempsville-Emporia complex, 6 to 10 percent slopes

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Marine terrace on coastal plain
Position on the landform: Strongly sloping side slopes
Size of areas: 5 to 150 acres
Shape of areas: Irregular

Map Unit Composition

Kempsville and similar soils: Typically 65 percent, ranging from about 60 to 75 percent
Emporia and similar soils: Typically 30 percent, ranging from about 25 to 45 percent

Typical Profile

Kempsville
Surface layer:
0 to 3 inches—dark grayish brown sandy loam

Subsurface layer:
3 to 19 inches—light reddish brown sandy loam

Subsoil:
19 to 29 inches—yellowish brown sandy clay loam
29 to 37 inches—yellowish brown sandy clay loam; pale brown and common strong brown mottles
37 to 65 inches—yellowish brown sandy clay; pale brown and common strong brown mottles

Substratum:
65 to 150 inches—yellowish brown, gray, and red sandy clay loam; plinthite nodules
150 to 234 inches—red sand

Emporia
Surface layer:
0 to 6 inches—grayish brown sandy loam

Subsurface layer:
6 to 12 inches—light yellowish brown sandy loam

Subsoil:
12 to 22 inches—yellowish brown loam; light yellowish brown masses of oxidized iron
22 to 36 inches—yellowish brown loam; strong brown and very pale brown masses of oxidized iron
36 to 42 inches—yellowish brown loam; very pale brown masses of oxidized iron
42 to 62 inches—brownish yellow, strong brown, pinkish gray, and red sandy clay loam

Minor Components

Dissimilar components:
- Suffolk soils, which are well drained and have coarse underlying material within a depth of 50 inches; in similar landscape positions

Similar components:
- Slagle soils, which are moderately well drained; in concave landscape positions

Soil Properties and Qualities

Available water capacity: Kempsville—moderate (about 8.2 inches); Emporia—moderate (about 8.8 inches)
Slowest saturated hydraulic conductivity: Kempsville—moderately high (about 0.20 in/hr); Emporia—moderately low (about 0.01 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Well drained
Depth to seasonal water saturation: Kempsville—more than 6 feet; Emporia—about 36 to 54 inches
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Medium
Surface fragments: None
Parent material: Loamy marine deposits

Use and Management Considerations

Cropland
Suitability: Moderately suited to corn, soybeans, and wheat; not suited to alfalfa hay
- The rate of surface runoff, the erosion hazard, and the amount of nutrient loss are increased because of the slope.

Pastureland
Suitability: Well suited to pasture
- The hazard of erosion, the rate of surface runoff, and the amount of nutrient loss are increased because of the slope.

Woodland
Suitability: Moderately suited to loblolly pine, southern red oak, yellow-poplar, and sweetgum
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- The slope may restrict the use of some mechanical planting equipment.
- These soils are well suited to haul roads and log landings.

Building sites
- The seasonal high water table may restrict the period when excavations can be made.
- The slope influences the use of machinery and the amount of excavation required.

Septic tank absorption fields
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.
- The slope limits the proper treatment of effluent from conventional septic systems.

Local roads and streets
- Because of shrinking and swelling, the use of these soils as base material for local roads and streets is restricted.
- The low strength is unfavorable for supporting heavy loads.
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Prime farmland: All areas are prime farmland
Land capability class: 3e
Virginia soil management group: Kempsville—S; Emporia—R
Hydric soils: No

12A—Myatt-Slagle complex, 0 to 2 percent slopes

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Marine terraces and stream terraces
Position on the landform: Upland flats
Size of areas: 3 to 10 acres
Shape of areas: Irregularly oval

Map Unit Composition

Myatt and similar soils: Typically 70 percent, ranging from about 65 to 85 percent
Slagle and similar soils: Typically 20 percent, ranging from about 15 to 40 percent

Typical Profile

Myatt
Surface layer:
0 to 7 inches—very dark grayish brown loam

Subsurface layer:
7 to 15 inches—dark grayish brown fine sandy loam

Subsoil:
15 to 31 inches—dark gray sandy clay loam; yellowish brown and dark yellowish brown masses of oxidized iron
31 to 40 inches—dark gray sandy clay loam; gray iron depletions

Substratum:
40 to 65 inches—gray coarse sand

Slagle
Surface layer:
0 to 10 inches—brown fine sandy loam

Subsurface layer:
10 to 16 inches—light yellowish brown fine sandy loam

Subsoil:
16 to 21 inches—yellowish brown sandy clay loam; light yellowish brown masses of oxidized iron
21 to 28 inches—yellowish brown sandy clay loam; pale brown masses of oxidized iron and light brownish gray iron depletions
28 to 40 inches—yellowish brown sandy clay loam; yellowish red masses of oxidized iron and light brownish gray iron depletions
40 to 51 inches—light brownish gray, yellowish brown, pale brown, and strong brown sandy loam
51 to 65 inches—light brownish gray, yellowish brown, and strong brown fine sandy loam

Minor Components

Dissimilar components:
- Kempsville soils, which are well drained

Similar components:
- Soils that are subject to ponding; in concave landscape positions

Soil Properties and Qualities

Available water capacity: Myatt—moderate (about 7.7 inches); Slagle—moderate (about 8.1 inches)
Slowest saturated hydraulic conductivity: Myatt—moderately high (about 0.20 in/hr); Slagle—moderately low (about 0.06 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Myatt—poorly drained; Slagle—moderately well drained
Depth to seasonal water saturation: Myatt—about 0 to 12 inches; Slagle—about 48 to 72 inches
Water table (kind): Myatt—apparent; Slagle—perched

Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Very high
Surface fragments: None
Parent material: Loamy marine deposits

Use and Management Considerations

Cropland
Suitability: Poorly suited to corn, soybeans, and wheat; not suited to alfalfa hay
- The seasonal high water table restricts equipment operation, decreases the viability of crops, and interferes with the planting and harvesting of crops.

Pastureland
Suitability: Moderately suited to pasture
- The seasonal high water table can affect equipment use, grazing patterns, and the viability of grass and legume species.

Woodland
Suitability: Moderately suited to loblolly pine and sweetgum
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- Soil wetness may limit the use of log trucks.
- The low strength interferes with the construction of haul roads and log landings.
- The low strength may create unsafe conditions for log trucks.

Building sites
- Flooding is a limitation affecting building site development.
- The seasonal high water table may restrict the period when excavations can be made.

Septic tank absorption fields
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.

Local roads and streets
- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of the soil.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: Myatt—4w; Slagle—2w
Virginia soil management group: Myatt—OO; Slagle—K
Hydric soils: Myatt—yes; Slagle—no

13E—Nevarc sandy loam, 15 to 50 percent slopes

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Marine terrace on coastal plain
Position on the landform: Uplands
Size of areas: 2 to 20 acres
Shape of areas: Irregular, long and winding

Map Unit Composition

Nevarc and similar soils: Typically 85 percent, ranging from about 70 to 90 percent

Typical Profile

Surface layer:
0 to 6 inches—grayish brown sandy loam

Subsoil:
6 to 22 inches—pale brown clay loam; yellowish brown masses of oxidized iron
22 to 40 inches—yellowish brown clay; strong brown masses of oxidized iron and light gray iron depletions

Substratum:
40 to 60 inches—pinkish gray clay; strong brown and red masses of oxidized iron

Minor Components

Dissimilar components:
- Bibb soils, which are poorly drained and subject to flooding; on narrow bottoms along drainageways and small streams

Similar components:
- Emporia soils, which are well drained and have gray iron depletions in the subsoil that are deeper than those of the Nevarc soil; in similar landscape positions
- Suffolk soils, which are well drained and do not have gray iron depletions in the subsoil; in similar landscape positions
- Rumford soils, which are well drained, have less clay in the subsoil than the Nevarc soil, and do not have the thick sandy surface layer of Remlik soils; in similar landscape positions
- Slagle soils, which are moderately well drained and have less clay in the subsoil than the Nevarc soil; in similar landscape positions
- Soils that have sandy surface material more than 40 inches thick; in similar landscape positions
- Soils that have more gravel; in similar landscape positions
- Soils that are severely eroded; in similar landscape positions
- Soils that contain ironstone fragments; in similar landscape positions
- Soils that are in areas of springs or seeps; at the base of slopes

Soil Properties and Qualities

Available water capacity: Moderate (about 7.4 inches)
Slowest saturated hydraulic conductivity: Moderately low (about 0.06 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Moderately well drained
Depth to seasonal water saturation: About 18 to 36 inches
Water table (kind): Perched
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Moderate
Runoff class: High
Surface fragments: None
Parent material: Loamy marine deposits

Use and Management Considerations

Cropland
- This soil is unsuited to cropland.

Pastureland
- This soil is unsuited to pastureland.

Woodland
Suitability: Moderately suited to loblolly pine, southern red oak, yellow-poplar, and sweetgum
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- The slope poses safety hazards and creates a potential for erosion during the construction of haul roads and log landings.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks and harvesting equipment.
- Because of the slope, the use of equipment for preparing sites for planting and seeding is restricted.
- The slope makes the use of mechanical planting equipment impractical.
- The low strength interferes with the construction of haul roads and log landings.
- The stickiness of the soil reduces the efficiency of mechanical planting equipment.
- The stickiness of the soil restricts the use of equipment for site preparation to the drier periods.

Building sites
- The seasonal high water table may restrict the period when excavations can be made.
- The slope influences the use of machinery and the amount of excavation required.
- The high content of clay in the subsurface layer increases the difficulty of digging, filling, and compacting the soil material in shallow excavations.

Septic tank absorption fields
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.
- The restricted permeability limits the absorption and proper treatment of the effluent from conventional septic systems.
- The slope limits the proper treatment of effluent from conventional septic systems.

Local roads and streets
- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of the soil.
- Because of shrinking and swelling, the use of this soil as base material for local roads and streets is restricted.
- The low strength is unfavorable for supporting heavy loads.
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 6e
Virginia soil management group: HH
Hydric soil: No

14—Pits, gravel, 0 to 3 percent slopes

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Quarry on upland

Map Unit Composition

Pits, gravel and similar soils: Typically 85 percent, ranging from about 85 to 100 percent

Definition

This map unit is composed of open excavations. These types of pits are associated with gravel mining or quarry activities. The sides of the pits are generally steep, and the floor is nearly level. Piles of stones and boulders are commonly on the pit floor. These areas may contain water in some low-lying places.

Use and Management Considerations

Onsite investigation is needed to determine the suitability for specific uses.

15A—Rappahannock muck, 0 to 1 percent slopes, frequently flooded

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Marsh on coastal plain
Position on the landform: Nearly level low, linear flood plains
Size of areas: 5 to 25 acres
Shape of areas: Irregular

Map Unit Composition

Rappahannock and similar soils: Typically 85 percent, ranging from about 80 to 95 percent

Typical Profile

Organic layer:
0 to 12 inches—very dark grayish brown muck
12 to 29 inches—very dark grayish brown highly decomposed plant material
29 to 39 inches—very dark gray highly decomposed plant material

Substratum:
39 to 62 inches—very dark gray sandy loam

Minor Components

Dissimilar components:
- Roanoke and Tomotley soils, which are poorly drained; on low terraces

Similar components:
- Levy soils, which are very poorly drained and mineral; in marshes and swamps
- Bibb soils, which are poorly drained and mineral; on flood plains

Soil Properties and Qualities

Available water capacity: Very high (about 12.3 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Very poorly drained
Depth to seasonal water saturation: About 0 inches
Water table (kind): Apparent
Flooding hazard: Frequent

Ponding hazard: Frequent
Depth of ponding: 0.0 to 2.0 feet
Shrink-swell potential: Low
Runoff class: Negligible
Surface fragments: None
Parent material: Organic material over alluvial sediments

Use and Management Considerations

Cropland
- This soil is unsuited to cropland.

Pastureland
- This soil is unsuited to pastureland.

Building sites
- This soil is unsuited to building sites.
- Flooding and ponding are limitations affecting building site development.
- The seasonal high water table may restrict the period when excavations can be made.

Septic tank absorption fields
- This soil is unsuited to septic tank absorption fields.
- Flooding and ponding are limitations affecting septic tank absorption fields.
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.

Local roads and streets
- Flooding may damage local roads and streets.
- Ponding affects the ease of excavation and grading and limits the bearing capacity of the soil.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 7w
Virginia soil management group: PP
Hydric soil: Yes

16B—Remlik loamy sand, 2 to 6 percent slopes

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Marine terrace on coastal plain
Position on the landform: Uplands
Size of areas: 2 to 20 acres
Shape of areas: Irregular, long and winding

Map Unit Composition

Remlik and similar soils: Typically 95 percent, ranging from about 85 to 95 percent

Typical Profile

Surface layer:
0 to 4 inches—brown loamy sand

Subsurface layer:
4 to 22 inches—light yellowish brown loamy sand

Subsoil:
22 to 38 inches—strong brown sandy clay loam
38 to 70 inches—strong brown sandy loam

Minor Components

Dissimilar components:
- Bibb soils, which are poorly drained and subject to flooding; on narrow bottoms along drainageways and small streams

Similar components:
- Emporia soils, which are well drained and have gray iron depletions in the subsoil that are deeper than those of Nevarc soils; in similar landscape positions
- Kemspville and Suffolk soils, which are well drained and do not have gray iron depletions in the subsoil; in similar landscape positions
- Rumford soils, which are well drained, have less clay in the subsoil than Nevarc soils, and do not have the thick sandy surface layer of the Remlik soil; in similar landscape positions
- Slagle soils, which are moderately well drained and have less clay in the subsoil than Nevarc soils; in similar landscape positions
- Soils that have sandy surface material more than 40 inches thick; in similar landscape positions
- Soils that have more gravel; in similar landscape positions
- Soils that are severely eroded; in similar landscape positions
- Soils that contain ironstone fragments; in similar landscape positions
- Soils that are in areas of springs or seeps; at the base of slopes

Soil Properties and Qualities

Available water capacity: Moderate (about 6.2 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Well drained
Depth to seasonal water saturation: About 48 to 72 inches
Water table (kind): Perched
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Very low
Surface fragments: None
Parent material: Loamy marine deposits

Use and Management Considerations

Cropland
Suitability: Moderately suited to corn; poorly suited to soybeans; well suited to wheat; not suited to alfalfa hay
- The rate of surface runoff, the erosion hazard, and the amount of nutrient loss are increased because of the slope.
- Sandy or coarse textured layers accelerate the rate at which plant nutrients are leached.
- Soil crusting results in a decrease in water infiltration and hinders the emergence of seedlings.

Pastureland
Suitability: Well suited to pasture

- The hazard of erosion, the rate of surface runoff, and the amount of nutrient loss are increased because of the slope.

Woodland
Suitability: Moderately suited to loblolly pine, southern red oak, and yellow-poplar
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- Coarse textured soil layers may slough, thus reducing the efficiency of mechanical planting equipment.
- The coarseness of the soil material may reduce the traction of wheeled harvest equipment and log trucks.
- Coarse textured soil layers increase the maintenance of haul roads and log landings.

Building sites
- The seasonal high water table may restrict the period when excavations can be made.
- The high content of sand or gravel in the soil increases sloughing and causes cutbanks to be more susceptible to caving.

Septic tank absorption fields
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.
- Because the excessive permeability limits the proper treatment of the effluent from conventional septic systems, the water table may become polluted.

Local roads and streets
- This soil is well suited to local roads and streets.

Interpretive Groups

Prime farmland: All areas are prime farmland
Land capability class: 4s
Virginia soil management group: DD
Hydric soil: No

16C—Remlik loamy sand, 6 to 15 percent slopes

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Marine terrace on coastal plain
Position on the landform: Uplands
Size of areas: 2 to 20 acres
Shape of areas: Irregular, long and winding

Map Unit Composition

Remlik and similar soils: Typically 95 percent, ranging from about 85 to 95 percent

Typical Profile

Surface layer:
0 to 4 inches—brown loamy sand

Subsurface layer:
4 to 22 inches—light yellowish brown loamy sand

Subsoil:
22 to 38 inches—strong brown sandy clay loam
38 to 70 inches—strong brown sandy loam

Minor Components

Dissimilar components:
- Bibb soils, which are poorly drained and subject to flooding; on narrow bottoms along drainageways and small streams

Similar components:
- Emporia soils, which are well drained and have gray iron depletions in the subsoil that are deeper than those of Nevarc soils; in similar landscape positions
- Kemspville and Suffolk soils, which are well drained and do not have gray iron depletions in the subsoil; in similar landscape positions
- Rumford soils, which are well drained, have less clay in the subsoil than Nevarc soils, and do not have the thick sandy surface layer of the Remlik soil; in similar landscape positions
- Slagle soils, which are moderately well drained and have less clay in the subsoil than Nevarc soils; in similar landscape positions
- Soils that have sandy surface material more than 40 inches thick; in similar landscape positions
- Soils that have more gravel; in similar landscape positions
- Soils that are severely eroded; in similar landscape positions
- Soils that contain ironstone fragments; in similar landscape positions
- Soils that are in areas of springs or seeps; at the base of slopes

Soil Properties and Qualities

Available water capacity: Moderate (about 6.2 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Well drained
Depth to seasonal water saturation: About 48 to 72 inches
Water table (kind): Perched
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Low
Surface fragments: None
Parent material: Loamy marine deposits

Use and Management Considerations

Cropland
Suitability: Poorly suited to corn and soybeans; moderately suited to wheat; not suited to alfalfa hay
- The rate of surface runoff, the erosion hazard, and the amount of nutrient loss are increased because of the slope.
- Sandy or coarse textured layers accelerate the rate at which plant nutrients are leached.
- Soil crusting results in a decrease in water infiltration and hinders the emergence of seedlings.

Pastureland
Suitability: Well suited to pasture

- The hazard of erosion, the rate of surface runoff, and the amount of nutrient loss are increased because of the slope.

Woodland
Suitability: Moderately suited to loblolly pine, southern red oak, and yellow-poplar
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- The slope may restrict the use of some mechanical planting equipment.
- Coarse textured soil layers may slough, thus reducing the efficiency of mechanical planting equipment.
- The coarseness of the soil material may reduce the traction of wheeled harvest equipment and log trucks.
- Coarse textured soil layers increase the maintenance of haul roads and log landings.

Building sites
- The seasonal high water table may restrict the period when excavations can be made.
- The slope influences the use of machinery and the amount of excavation required.
- The high content of sand or gravel in the soil increases sloughing and causes cutbanks to be more susceptible to caving.

Septic tank absorption fields
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.
- The slope limits the proper treatment of effluent from conventional septic systems.

Local roads and streets
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 4s
Virginia soil management group: DD
Hydric soil: No

16E—Remlik loamy sand, 15 to 50 percent slopes

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Marine terrace on coastal plain
Position on the landform: Uplands
Size of areas: 2 to 20 acres
Shape of areas: Irregular, long and winding

Map Unit Composition

Remlik and similar soils: Typically 90 percent, ranging from about 85 to 95 percent

Typical Profile

Surface layer:
0 to 4 inches—brown loamy sand

Subsurface layer:
4 to 22 inches—light yellowish brown loamy sand

Subsoil:
22 to 38 inches—strong brown sandy clay loam
38 to 70 inches—strong brown sandy loam

Minor Components

Dissimilar components:
- Bibb soils, which are poorly drained and subject to flooding; on narrow bottoms along drainageways and small streams

Similar components:
- Emporia soils, which are well drained and have gray iron depletions in the subsoil that are deeper than those of Nevarc soils; in similar landscape positions
- Kemspville and Suffolk soils, which are well drained and do not have gray iron depletions in the subsoil; in similar landscape positions
- Rumford soils, which are well drained, have less clay in the subsoil than Nevarc soils, and do not have the thick sandy surface layer of the Remlik soil; in similar landscape positions
- Slagle soils, which are moderately well drained and have less clay in the subsoil than Nevarc soils; in similar landscape positions
- Soils that have sandy surface material more than 40 inches thick; in similar landscape positions
- Soils that have more gravel; in similar landscape positions
- Soils that are severely eroded; in similar landscape positions
- Soils that contain ironstone fragments; in similar landscape positions
- Soils that are in areas of springs or seeps; at the base of slopes

Soil Properties and Qualities

Available water capacity: Moderate (about 6.2 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Well drained
Depth to seasonal water saturation: About 48 to 72 inches
Water table (kind): Perched
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Medium
Surface fragments: None
Parent material: Loamy marine deposits

Use and Management Considerations

Cropland
- This soil is unsuited to cropland.

Pastureland
- This soil is unsuited to pastureland.

Woodland
Suitability: Moderately suited to loblolly pine, southern red oak, and yellow-poplar
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.

- The slope poses safety hazards and creates a potential for erosion during the construction of haul roads and log landings.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks and harvesting equipment.
- Because of the slope, the use of equipment for preparing sites for planting and seeding is restricted.
- The slope makes the use of mechanical planting equipment impractical.
- Coarse textured soil layers may slough, thus reducing the efficiency of mechanical planting equipment.
- The coarseness of the soil material may reduce the traction of wheeled harvest equipment and log trucks.
- Coarse textured soil layers increase the maintenance of haul roads and log landings.

Building sites
- The seasonal high water table may restrict the period when excavations can be made.
- The slope influences the use of machinery and the amount of excavation required.
- The high content of sand or gravel in the soil increases sloughing and causes cutbanks to be more susceptible to caving.

Septic tank absorption fields
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.
- The slope limits the proper treatment of effluent from conventional septic systems.

Local roads and streets
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 6e
Virginia soil management group: DD
Hydric soil: No

17D—Rion sandy loam, 15 to 25 percent slopes

Setting

Major land resource area: Southern Piedmont (MLRA 136)
Landform: Uplands
Position on the landform: Side slope, nose slope, and backslope
Size of areas: 2 to 20 acres
Shape of areas: Irregular, long and winding

Map Unit Composition

Rion and similar soils: Typically 95 percent, ranging from about 85 to 95 percent

Typical Profile

Surface layer:
0 to 4 inches—brown sandy loam

Subsurface layer:
4 to 18 inches—yellowish brown sandy loam

Subsoil:
18 to 38 inches—strong brown sandy clay loam

Substratum:
38 to 60 inches—light yellowish brown sandy loam

Minor Components

Dissimilar components:
- Helena soils, which are moderately well drained

Similar components:
- Cecil and Appling soils, which have more clay

Soil Properties and Qualities

Available water capacity: Moderate (about 6.4 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: High
Surface fragments: None
Parent material: Residuum weathered from granite and gneiss

Use and Management Considerations

Cropland
- This soil is unsuited to cropland.

Pastureland
Suitability: Moderately suited to pasture
- The hazard of erosion, the rate of surface runoff, and the amount of nutrient loss are increased because of the slope.

Woodland
Suitability: Moderately suited to loblolly pine, yellow-poplar, and sweetgum; well suited to southern red oak
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- The slope poses safety hazards and creates a potential for erosion during the construction of haul roads and log landings.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks and harvesting equipment.
- Because of the slope, the use of equipment for preparing sites for planting and seeding is restricted.
- The slope may restrict the use of some mechanical planting equipment.

Building sites
- The slope influences the use of machinery and the amount of excavation required.

Septic tank absorption fields
- The slope limits the proper treatment of effluent from conventional septic systems.

Local roads and streets

- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 4e
Virginia soil management group: X
Hydric soil: No

18A—Riverview silt loam, 0 to 2 percent slopes, occasionally flooded

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Piedmont flood plains
Position on the landform: Nearly level broad terraces along the James River
Size of areas: 2 to 20 acres
Shape of areas: Irregular, long and winding

Map Unit Composition

Riverview and similar soils: Typically 80 percent, ranging from about 80 to 95 percent

Typical Profile

Surface layer:
0 to 2 inches—dark brown silt loam
2 to 5 inches—brown silt loam

Subsoil:
5 to 27 inches—brown silt loam

Substratum:
27 to 56 inches—brown silt loam; light gray iron depletions and very pale brown and yellowish brown masses of oxidized iron
56 to 104 inches—very dark grayish brown silt loam; strong brown and brownish yellow masses of oxidized iron

Minor Components

Dissmilar components:

- Chewacla soils, which are somewhat poorly drained

Similar components:

- Soils that have less clay; in similar landscape positions
- Soils that have less than 50 percent gray iron depletions in the upper part of the subsoil; in higher linear or concave areas

Soil Properties and Qualities

Available water capacity: Moderate (about 8.2 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Well drained
Depth to seasonal water saturation: About 36 to 60 inches
Water table (kind): Apparent
Flooding hazard: Occasional

Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Low
Surface fragments: None
Parent material: Alluvium

Use and Management Considerations

Cropland
Suitability: Well suited to corn, soybeans, and wheat; moderately suited to alfalfa hay
- The risk of compaction increases when the soil is wet.
- Soil crusting results in a decrease in water infiltration and hinders the emergence of seedlings.
- Flooding may damage crops.

Pastureland
Suitability: Well suited to pasture
- Flooding may damage pastures.

Woodland
Suitability: Well suited to loblolly pine, yellow-poplar, and sweetgum
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should focus on streamside management zones and stream crossings and should include general adherence to all applicable best management practices.
- Flooding may damage haul roads.
- Flooding restricts the safe use of roads by log trucks.
- The low strength interferes with the construction of haul roads and log landings.

Building sites
- Flooding is a limitation affecting building site development.
- The seasonal high water table may restrict the period when excavations can be made.

Septic tank absorption fields
- Flooding is a limitation affecting septic tank absorption fields.
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.

Local roads and streets
- Flooding may damage local roads and streets.
- The low strength is unfavorable for supporting heavy loads.

Interpretive Groups

Prime farmland: All areas are prime farmland
Land capability class: 1
Virginia soil management group: G
Hydric soil: No

19A—Roanoke loam, 0 to 2 percent slopes, ponded

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Stream terrace on coastal plain
Position on the landform: Nearly level linear or concave treads

Elevation: 10 to 351 feet
Size and shape of areas: 5 to 75 acres

Map Unit Composition

Roanoke and similar soils: Typically 85 percent, ranging from about 80 to 95 percent

Typical Profile

Surface layer:
0 to 5 inches—very dark grayish brown loam

Subsoil:
5 to 10 inches—dark grayish brown clay loam; grayish brown iron depletions and brownish yellow masses of oxidized iron
10 to 30 inches—grayish brown clay; brownish yellow masses of oxidized iron
30 to 36 inches—light brownish gray clay
36 to 42 inches—light brownish gray sandy clay loam; brownish yellow masses of oxidized iron

Substratum:
42 to 62 inches—light brownish gray stratified loamy sand to sandy loam to clay loam; brownish yellow masses of oxidized iron

Minor Components

Dissimilar components:
- Bibb soils, which are poorly drained and have less clay throughout than the Roanoke soil; on flood plains

Similar components:
- Tomotley soils, which are poorly drained and have less clay in the subsoil than the Roanoke soil

Soil Properties and Qualities

Available water capacity: Moderate (about 8.9 inches)
Slowest saturated hydraulic conductivity: Low (about 0.00 in/hr)
Drainage class: Poorly drained
Depth to seasonal water saturation: About 0 to 6 inches
Water table kind: Apparent
Flooding hazard: None
Ponding hazard: Occasional
Depth of ponding: 0.0 to 1.0 foot
Shrink-swell potential: Moderate
Runoff class: Negligible
Parent material: Alluvium

Use and Management Considerations

Cropland
- This soil is unsuited to cropland.

Pasture
- The seasonal high water table and ponding affect equipment use, grazing patterns, and the viability of grass and legume species.

Woodland
Suitability: Moderately suited to sweetgum
- Ponding restricts the safe use of roads by log trucks.
- Soil wetness may limit the use of log trucks.

- The low strength of the soil interferes with the construction of haul roads and log landings.
- The low strength of the soil may create unsafe conditions for log trucks.
- The stickiness increases the difficulty of constructing haul roads and log landings when the soil is wet.
- The stickiness of the soil reduces the efficiency of mechanical planting equipment.
- The stickiness of the soil restricts the use of equipment for site preparation to the drier periods.

Building sites
- Ponding is a limitation affecting building site development.

Septic tank absorption fields
- Ponding is a limitation affecting septic tank absorption fields.
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.

Local roads and streets
- Ponding affects the ease of excavation and grading and limits the bearing capacity of this soil.
- Shrinking and swelling restrict the use of this soil as base material for local roads and streets.
- The low strength of this soil is unfavorable for supporting heavy loads.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 6w
Virginia soil management group: NN
Hydric soil: Yes

20B—Rumford loamy sand, 0 to 6 percent slopes

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Marine terrace on coastal plain
Position on the landform: Nearly level to gently sloping convex areas on summits and shoulders
Size of areas: 5 to 50 acres
Shape of areas: Irregular, long and winding

Map Unit Composition

Rumford and similar soils: Typically 95 percent, ranging from about 80 to 95 percent

Typical Profile

Surface layer:
0 to 7 inches—brown loamy sand

Subsurface layer:
7 to 14 inches—light yellowish brown loamy sand

Subsoil:
14 to 24 inches—dark yellowish brown sandy loam
24 to 38 inches—yellowish brown sandy loam
38 to 55 inches—yellowish brown loamy sand

Substratum:
55 to 84 inches—brownish yellow sand
84 to 95 inches—yellowish brown sandy loam
95 to 99 inches—brownish yellow loamy sand

Minor Components

Dissimilar components:
- Slagle soils, which are moderately well drained and have more clay in the subsoil than the Rumford soil; in concave landscape positions
- Emporia soils, which are well drained and have more clay in the subsoil than the Rumford soil; in similar landscape positions

Similar components:
- Suffolk soils, which are well drained and have more clay in the subsoil than the Rumford soil; in similar landscape positions

Soil Properties and Qualities

Available water capacity: Moderate (about 6.3 inches)
Slowest saturated hydraulic conductivity: High (about 1.98 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Very low
Surface fragments: None
Parent material: Loamy marine deposits

Use and Management Considerations

Cropland
Suitability: Moderately suited to corn; poorly suited to soybeans; well suited to wheat; not suited to alfalfa hay
- The rate of surface runoff, the erosion hazard, and the amount of nutrient loss are increased because of the slope.
- Soil crusting results in a decrease in water infiltration and hinders the emergence of seedlings.

Pastureland
Suitability: Well suited to pasture
- The hazard of erosion, the rate of surface runoff, and the amount of nutrient loss are increased because of the slope.

Woodland
Suitability: Moderately suited to loblolly pine and southern red oak
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- Coarse textured soil layers may slough, thus reducing the efficiency of mechanical planting equipment.
- The coarseness of the soil material may reduce the traction of wheeled harvest equipment and log trucks.
- Coarse textured soil layers increase the maintenance of haul roads and log landings.

Building sites
- The high content of sand or gravel in the soil increases sloughing and causes cutbanks to be more susceptible to caving.

Septic tank absorption fields
- Because the excessive permeability limits the proper treatment of the effluent from conventional septic systems, the water table may become polluted.
- This soil is well suited to septic tank absorption fields.

Local roads and streets
- This soil is well suited to local roads and streets.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 2e
Virginia soil management group: DD
Hydric soil: No

20C—Rumford loamy sand, 6 to 10 percent slopes

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Marine terrace on coastal plain
Position on the landform: Strongly sloping side slopes
Size of areas: 2 to 20 acres
Shape of areas: Irregular, long and winding

Map Unit Composition

Rumford and similar soils: Typically 95 percent, ranging from about 80 to 95 percent

Typical Profile

Surface layer:
0 to 7 inches—brown loamy sand

Subsurface layer:
7 to 14 inches—light yellowish brown loamy sand

Subsoil:
14 to 24 inches—dark yellowish brown sandy loam
24 to 38 inches—yellowish brown sandy loam
38 to 55 inches—yellowish brown loamy sand

Substratum:
55 to 84 inches—brownish yellow sand
84 to 95 inches—yellowish brown sandy loam
95 to 99 inches—brownish yellow loamy sand

Minor Components

Dissimilar components:
- Slagle soils, which are moderately well drained and have more clay in the subsoil than the Rumford soil; in concave landscape positions
- Emporia soils, which are well drained and have more clay in the subsoil than the Rumford soil; in similar landscape positions

Similar components:
- Suffolk soils, which are well drained and have more clay in the subsoil than the Rumford soil; in similar landscape positions

Soil Properties and Qualities

Available water capacity: Moderate (about 6.3 inches)
Slowest saturated hydraulic conductivity: High (about 1.98 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Low
Surface fragments: None
Parent material: Loamy marine deposits

Use and Management Considerations

Cropland
Suitability: Poorly suited to corn and soybeans; moderately suited to wheat; not suited to alfalfa hay
- The rate of surface runoff, the erosion hazard, and the amount of nutrient loss are increased because of the slope.
- Soil crusting results in a decrease in water infiltration and hinders the emergence of seedlings.

Pastureland
Suitability: Well suited to pasture
- The hazard of erosion, the rate of surface runoff, and the amount of nutrient loss are increased because of the slope.

Woodland
Suitability: Moderately suited to loblolly pine and southern red oak
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- The slope may restrict the use of some mechanical planting equipment.
- Coarse textured soil layers may slough, thus reducing the efficiency of mechanical planting equipment.
- The coarseness of the soil material may reduce the traction of wheeled harvest equipment and log trucks.
- Coarse textured soil layers increase the maintenance of haul roads and log landings.

Building sites
- The slope influences the use of machinery and the amount of excavation required.
- The high content of sand or gravel in the soil increases sloughing and causes cutbanks to be more susceptible to caving.

Septic tank absorption fields
- Because the excessive permeability limits the proper treatment of the effluent from conventional septic systems, the water table may become polluted.
- The slope limits the proper treatment of effluent from conventional septic systems.

Local roads and streets

- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 3e
Virginia soil management group: DD
Hydric soil: No

20D—Rumford loamy sand, 10 to 15 percent slopes

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Marine terrace on coastal plain
Position on the landform: Strongly sloping side slopes
Size of areas: 5 to 600 acres
Shape of areas: Irregular, long and winding

Map Unit Composition

Rumford and similar soils: Typically 90 percent, ranging from about 80 to 95 percent

Typical Profile

Surface layer:
0 to 7 inches—brown loamy sand

Subsurface layer:
7 to 14 inches—light yellowish brown loamy sand

Subsoil:
14 to 24 inches—dark yellowish brown sandy loam
24 to 38 inches—yellowish brown sandy loam
38 to 55 inches—yellowish brown loamy sand

Substratum:
55 to 84 inches—brownish yellow sand
84 to 95 inches—yellowish brown sandy loam
95 to 99 inches—brownish yellow loamy sand

Minor Components

Dissimilar components:

- Slagle soils, which are moderately well drained and have more clay in the subsoil than the Rumford soil; in concave landscape positions
- Emporia soils, which are well drained and have more clay in the subsoil than the Rumford soil; in similar landscape positions

Similar components:

- Suffolk soils, which are well drained and have more clay in the subsoil than the Rumford soil; in similar landscape positions

Soil Properties and Qualities

Available water capacity: Moderate (about 6.3 inches)
Slowest saturated hydraulic conductivity: High (about 1.98 in/hr)

Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Low
Surface fragments: None
Parent material: Loamy marine deposits

Use and Management Considerations

Cropland

Suitability: Poorly suited to corn, soybeans, and wheat; not suited to alfalfa hay
- The rate of surface runoff, the erosion hazard, and the amount of nutrient loss are increased because of the slope.
- Soil crusting results in a decrease in water infiltration and hinders the emergence of seedlings.

Pastureland

Suitability: Moderately suited to pasture
- The hazard of erosion, the rate of surface runoff, and the amount of nutrient loss are increased because of the slope.

Woodland

Suitability: Moderately suited to loblolly pine and southern red oak
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- The slope may restrict the use of some mechanical planting equipment.
- Coarse textured soil layers may slough, thus reducing the efficiency of mechanical planting equipment.
- The coarseness of the soil material may reduce the traction of wheeled harvest equipment and log trucks.
- Coarse textured soil layers increase the maintenance of haul roads and log landings.

Building sites

- The slope influences the use of machinery and the amount of excavation required.
- The high content of sand or gravel in the soil increases sloughing and causes cutbanks to be more susceptible to caving.

Septic tank absorption fields

- The slope limits the proper treatment of effluent from conventional septic systems.

Local roads and streets

- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 3e
Virginia soil management group: DD
Hydric soil: No

21C—Slagle-Kempsville complex, 2 to 15 percent slopes

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Marine terrace on coastal plain
Position on the landform: Strongly sloping side slopes
Size and shape of areas: 5 to 50 acres
Shape of areas: Irregular

Map Unit Composition

Slagle and similar soils: Typically 55 percent, ranging from about 50 to 70 percent
Kempsville and similar soils: Typically 30 percent, ranging from about 25 to 40 percent

Typical Profile

Slagle
Surface layer:
0 to 10 inches—brown fine sandy loam

Subsurface layer:
10 to 16 inches—light yellowish brown fine sandy loam

Subsoil:
16 to 21 inches—yellowish brown sandy clay loam; light yellowish brown masses of oxidized iron
21 to 28 inches—yellowish brown sandy clay loam; pale brown masses of oxidized iron and light brownish gray iron depletions
28 to 40 inches—yellowish brown sandy clay loam; yellowish red masses of oxidized iron and light brownish gray iron depletions
40 to 51 inches—light brownish gray, yellowish brown, pale brown, and strong brown sandy loam
51 to 65 inches—light brownish gray, yellowish brown, and strong brown fine sandy loam

Kempsville
Surface layer:
0 to 3 inches—dark grayish brown sandy loam

Subsurface layer:
3 to 19 inches—light reddish brown sandy loam

Subsoil:
19 to 29 inches—yellowish brown sandy clay loam
29 to 37 inches—yellowish brown sandy clay loam; pale brown and common strong brown mottles
37 to 65 inches—yellowish brown sandy clay; pale brown and common strong brown mottles

Substratum:
65 to 150 inches—yellowish brown, gray, and red sandy clay loam; plinthite nodules
150 to 234 inches—red sand

Minor Components

Dissimilar components:
- Suffolk soils, which are well drained and have coarse underlying material within a depth of 50 inches; in similar landscape positions

Similar components:
- Emporia soils, which are well drained

Soil Properties and Qualities

Available water capacity: Moderate (about 8.1 inches)
Slowest saturated hydraulic conductivity: Slagle—moderately low (about 0.06 in/hr); Kempsville—moderately high (about 0.20 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Slagle—moderately well drained; Kempsville—well drained
Depth to seasonal water saturation: Slagle—about 48 to 72 inches; Kempsville—more than 6 feet
Water table (kind): Slagle—perched
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Slagle—moderate; Kempsville—low
Runoff class: Medium
Surface fragments: None
Parent material: Loamy marine deposits

Use and Management Considerations

Cropland
Suitability: Moderately suited to corn, soybeans, and alfalfa hay; well suited to wheat
- The rate of surface runoff, the erosion hazard, and the amount of nutrient loss are increased because of the slope.

Pastureland
Suitability: Well suited to pasture
- The hazard of erosion, the rate of surface runoff, and the amount of nutrient loss are increased because of the slope.

Woodland
Suitability: Well suited to loblolly pine; moderately suited to southern red oak, yellow-poplar, and sweetgum
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- The slope may restrict the use of some mechanical planting equipment.
- The low strength interferes with the construction of haul roads and log landings.
- The low strength may create unsafe conditions for log trucks.

Building sites
- The seasonal high water table may restrict the period when excavations can be made.
- The slope influences the use of machinery and the amount of excavation required.

Septic tank absorption fields
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.
- The restricted permeability limits the absorption and proper treatment of the effluent from conventional septic systems.
- The slope limits the proper treatment of effluent from conventional septic systems.

Local roads and streets
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 3e
Virginia soil management group: Slagle—K; Kempsville—S
Hydric soils: No

22A—Slagle fine sandy loam, 0 to 2 percent slopes

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Coastal Plain uplands
Position on the landform: Gently sloping broad, slightly convex rises
Size of areas: 5 to 60 acres
Shape of areas: Irregular

Map Unit Composition

Slagle and similar soils: Typically 90 percent, ranging from about 70 to 95 percent

Typical Profile

Surface layer:
0 to 10 inches—brown fine sandy loam

Subsurface layer:
10 to 16 inches—light yellowish brown fine sandy loam

Subsoil:
16 to 21 inches—yellowish brown sandy clay loam; light yellowish brown masses of oxidized iron
21 to 28 inches—yellowish brown sandy clay loam; pale brown masses of oxidized iron and light brownish gray iron depletions
28 to 40 inches—yellowish brown sandy clay loam; yellowish red masses of oxidized iron and light brownish gray iron depletions
40 to 51 inches—light brownish gray, yellowish brown, pale brown, and strong brown sandy loam
51 to 65 inches—light brownish gray, yellowish brown, and strong brown fine sandy loam

Minor Components

Dissimilar components:
- Suffolk soils, which are well drained and have coarse underlying material within a depth of 50 inches; in similar landscape positions

Similar components:
- Emporia soils, which are well drained

Soil Properties and Qualities

Available water capacity: Moderate (about 8.1 inches)
Slowest saturated hydraulic conductivity: Moderately low (about 0.06 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Moderately well drained

Depth to seasonal water saturation: About 48 to 72 inches
Water table (kind): Perched
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Moderate
Runoff class: Low
Surface fragments: None
Parent material: Loamy marine deposits

Use and Management Considerations

Cropland
- This soil is well suited to corn, soybeans, and wheat and moderately suited to alfalfa hay.

Pastureland
- This soil is well suited to pastureland.

Woodland
Suitability: Well suited to loblolly pine; moderately suited to southern red oak, yellow-poplar, and sweetgum
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- The low strength interferes with the construction of haul roads and log landings.
- The low strength may create unsafe conditions for log trucks.

Building sites
- The seasonal high water table may restrict the period when excavations can be made.

Septic tank absorption fields
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.
- Because the excessive permeability limits the proper treatment of the effluent from conventional septic systems, the water table may become polluted.
- The restricted permeability limits the absorption and proper treatment of the effluent from conventional septic systems.

Local roads and streets
- This soil is well suited to local roads and streets.

Interpretive Groups

Prime farmland: All areas are prime farmland
Land capability class: 2w
Virginia soil management group: K
Hydric soil: No

22B—Slagle fine sandy loam, 2 to 6 percent slopes

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Coastal Plain uplands
Position on the landform: Gently sloping broad, slightly convex rises
Size of areas: 5 to 60 acres
Shape of areas: Irregular

Map Unit Composition

Slagle and similar soils: Typically 95 percent, ranging from about 80 to 95 percent

Typical Profile

Surface layer:
0 to 10 inches—brown fine sandy loam

Subsurface layer:
10 to 16 inches—light yellowish brown fine sandy loam

Subsoil:
16 to 21 inches—yellowish brown sandy clay loam; light yellowish brown masses of oxidized iron
21 to 28 inches—yellowish brown sandy clay loam; pale brown masses of oxidized iron and light brownish gray iron depletions
28 to 40 inches—yellowish brown sandy clay loam; yellowish red masses of oxidized iron and light brownish gray iron depletions
40 to 51 inches—light brownish gray, yellowish brown, pale brown, and strong brown sandy loam
51 to 65 inches—light brownish gray, yellowish brown, and strong brown fine sandy loam

Minor Components

Dissimilar components:
- Suffolk soils, which are well drained and have coarse underlying material within a depth of 50 inches; in similar landscape positions

Similar components:
- Emporia soils, which are well drained

Soil Properties and Qualities

Available water capacity: Moderate (about 8.1 inches)
Slowest saturated hydraulic conductivity: Moderately low (about 0.06 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Moderately well drained
Depth to seasonal water saturation: About 48 to 72 inches
Water table (kind): Perched
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Moderate
Runoff class: Low
Surface fragments: None
Parent material: Loamy marine deposits

Use and Management Considerations

Cropland
Suitability: Well suited to corn, soybeans, and wheat; not suited to alfalfa hay
- The rate of surface runoff, the erosion hazard, and the amount of nutrient loss are increased because of the slope.

Pastureland
Suitability: Well suited to pasture
- The hazard of erosion, the rate of surface runoff, and the amount of nutrient loss are increased because of the slope.

Woodland

Suitability: Well suited to loblolly pine; moderately suited to southern red oak, yellow-poplar, and sweetgum

- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- The low strength interferes with the construction of haul roads and log landings.
- The low strength may create unsafe conditions for log trucks.

Building sites

- The seasonal high water table may restrict the period when excavations can be made.

Septic tank absorption fields

- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.
- Because the excessive permeability limits the proper treatment of the effluent from conventional septic systems, the water table may become polluted.
- The restricted permeability limits the absorption and proper treatment of the effluent from conventional septic systems.

Local roads and streets

- This soil is well suited to local roads and streets.

Interpretive Groups

Prime farmland: All areas are prime farmland
Land capability class: 2e
Virginia soil management group: K
Hydric soil: No

23A—State fine sandy loam, 0 to 2 percent slopes, very rarely flooded

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Stream terrace on coastal plain
Position on the landform: Gently sloping convex treads
Size of areas: 5 to 60 acres
Shape of areas: Irregular, long and winding

Map Unit Composition

State and similar soils: Typically 90 percent, ranging from about 85 to 95 percent

Typical Profile

Surface layer:
0 to 8 inches—brown fine sandy loam

Subsurface layer:
8 to 17 inches—light yellowish brown fine sandy loam

Subsoil:
17 to 28 inches—yellowish brown sandy clay loam
28 to 36 inches—yellowish brown sandy loam

Substratum:
36 to 46 inches—yellowish brown loamy fine sand
46 to 56 inches—brownish yellow and very pale brown loamy sand
56 to 62 inches—very pale brown and olive yellow loamy fine sand

Minor Components

Dissimilar components:
- Craven soils, which are moderately well drained and have more clay in the subsoil than the State soil; in higher concave landscape positions
- Tarboro soils, which are somewhat excessively drained and sandy throughout; in slightly lower landscape positions

Similar components:
- Bojac soils, which are well drained and have less clay in the subsoil than the State soil; in similar landscape positions

Soil Properties and Qualities

Available water capacity: Moderate (about 6.7 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Well drained
Depth to seasonal water saturation: About 48 to 72 inches
Water table (kind): Apparent
Flooding hazard: Very rare
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Low
Surface fragments: None
Parent material: Alluvium

Use and Management Considerations

Cropland
- This soil is well suited to corn, soybeans, and wheat and moderately suited to alfalfa hay.

Pastureland
- This soil is well suited to pasture.

Woodland
Suitability: Well suited to loblolly pine, southern red oak, and yellow-poplar
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- This soil is well suited to haul roads and log landings.

Building sites
- The seasonal high water table may restrict the period when excavations can be made.

Septic tank absorption fields
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.
- Because the excessive permeability limits the proper treatment of the effluent from conventional septic systems, the water table may become polluted.

Local roads and streets
- This soil is well suited to local roads and streets.

Interpretive Groups

Prime farmland: All areas are prime farmland
Land capability class: 1
Virginia soil management group: B
Hydric soil: No

23B—State fine sandy loam, 2 to 6 percent slopes, very rarely flooded

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Stream terrace on coastal plain
Position on the landform: Gently sloping convex treads
Size of areas: 5 to 60 acres
Shape of areas: Irregular, long and winding

Map Unit Composition

State and similar soils: Typically 90 percent, ranging from about 85 to 95 percent

Typical Profile

Surface layer:
0 to 8 inches—brown fine sandy loam

Subsurface layer:
8 to 17 inches—light yellowish brown fine sandy loam

Subsoil:
17 to 28 inches—yellowish brown sandy clay loam
28 to 36 inches—yellowish brown sandy loam

Substratum:
36 to 46 inches—yellowish brown loamy fine sand
46 to 56 inches—brownish yellow and very pale brown loamy sand
56 to 62 inches—very pale brown and olive yellow loamy fine sand

Minor Components

Dissimilar components:
- Nevarc soils, which are moderately well drained and have more clay in the subsoil than the State soil; in higher concave landscape positions
- Tarboro soils, which are somewhat excessively drained and sandy throughout; in slightly lower landscape positions

Similar components:
- Bojac soils, which are well drained and have less clay in the subsoil than the State soil; in similar landscape positions

Soil Properties and Qualities

Available water capacity: Moderate (about 6.7 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches

Drainage class: Well drained
Depth to seasonal water saturation: About 48 to 72 inches
Water table (kind): Apparent
Flooding hazard: Very rare
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Low
Surface fragments: None
Parent material: Alluvium

Use and Management Considerations

Cropland
Suitability: Well suited to corn, soybeans, wheat; moderately suited to alfalfa hay
- The rate of surface runoff, the erosion hazard, and the amount of nutrient loss are increased because of the slope.

Pastureland
Suitability: Well suited to pasture
- The hazard of erosion, the rate of surface runoff, and the amount of nutrient loss are increased because of the slope.

Woodland
Suitability: Well suited to loblolly pine, southern red oak, and yellow-poplar
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- This soil is well suited to haul roads and log landings.

Building sites
- The seasonal high water table may restrict the period when excavations can be made.

Septic tank absorption fields
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.
- Because the excessive permeability limits the proper treatment of the effluent from conventional septic systems, the water table may become polluted.

Local roads and streets
- This soil is well suited to local roads and streets.

Interpretive Groups

Prime farmland: All areas are prime farmland
Land capability class: 2e
Virginia soil management group: B
Hydric soil: No

23C—State fine sandy loam, 6 to 10 percent slopes, very rarely flooded

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Stream terrace on coastal plain
Position on the landform: Gently sloping convex treads

Size of areas: 5 to 60 acres
Shape of areas: Irregular, long and winding

Map Unit Composition

State and similar soils: Typically 90 percent, ranging from about 80 to 95 percent

Typical Profile

Surface layer:
0 to 8 inches—brown fine sandy loam

Subsurface layer:
8 to 17 inches—light yellowish brown fine sandy loam

Subsoil:
17 to 28 inches—yellowish brown sandy clay loam
28 to 36 inches—yellowish brown sandy loam

Substratum:
36 to 46 inches—yellowish brown loamy fine sand
46 to 56 inches—brownish yellow and very pale brown loamy sand
56 to 62 inches—very pale brown and olive yellow loamy fine sand

Minor Components

Dissimilar components:
- Nevarc soils, which are moderately well drained and have more clay in the subsoil than the State soil; in higher concave landscape positions
- Tarboro soils, which are somewhat excessively drained and sandy throughout; in slightly lower landscape positions

Similar components:
- Bojac soils, which are well drained and have less clay in the subsoil than the State soil; in similar landscape positions

Soil Properties and Qualities

Available water capacity: Moderate (about 6.7 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Well drained
Depth to seasonal water saturation: About 48 to 72 inches
Water table (kind): Apparent
Flooding hazard: Very rare
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Medium
Surface fragments: None
Parent material: Alluvium

Use and Management Considerations

Cropland
Suitability: Well suited to corn, soybeans, and wheat; moderately suited to alfalfa hay
- The rate of surface runoff, the erosion hazard, and the amount of nutrient loss are increased because of the slope.

Pastureland
Suitability: Well suited to pasture

- The hazard of erosion, the rate of surface runoff, and the amount of nutrient loss are increased because of the slope.

Woodland

Suitability: Well suited to loblolly pine and southern red oak; moderately suited to yellow-poplar

- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- The slope may restrict the use of some mechanical planting equipment.
- This soil is well suited to haul roads and log landings.

Building sites

- The seasonal high water table may restrict the period when excavations can be made.

Septic tank absorption fields

- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.
- Because the excessive permeability limits the proper treatment of the effluent from conventional septic systems, the water table may become polluted.
- The slope limits the proper treatment of effluent from conventional septic systems.

Local roads and streets

- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 3e
Virginia soil management group: B
Hydric soil: No

24A—Suffolk fine sandy loam, 0 to 2 percent slopes

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Marine terrace on coastal plain
Position on the landform: Nearly level convex areas on summits and shoulders
Size of areas: 5 to 30 acres
Shape of areas: Irregular, long and winding

Map Unit Composition

Suffolk and similar soils: Typically 95 percent, ranging from about 85 to 95 percent

Typical Profile

Surface layer:
0 to 8 inches—brown fine sandy loam

Subsurface layer:
8 to 16 inches—yellowish brown sandy loam

Subsoil:
16 to 21 inches—yellowish brown sandy loam
21 to 28 inches—dark yellowish brown sandy loam

28 to 37 inches—strong brown sandy clay loam
37 to 43 inches—strong brown sandy loam

Substratum:
43 to 59 inches—yellowish brown loamy sand
59 to 65 inches—very pale brown, brownish yellow, and yellowish brown sand

Minor Components

Dissimilar components:
- Nevarc soils, which are moderately well drained and have more clay in the subsoil than the Suffolk soil; in concave landscape positions
- Slagle soils, which are moderately well drained; in concave landscape positions
- Emporia soils, which are well drained and have more clay in the underlying material than the Suffolk soil; in similar landscape positions

Similar components:
- Rumford soils, which are well drained and have less clay in the subsoil than the Suffolk soil; in similar landscape positions

Soil Properties and Qualities

Available water capacity: Moderate (about 6.8 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Low
Surface fragments: None
Parent material: Loamy marine deposits

Use and Management Considerations

Cropland
- This soil is moderately suited to corn, well suited to soybeans and wheat, and not suited to alfalfa hay.

Pastureland
- This soil is well suited to pastureland.

Woodland
Suitability: Moderately suited to loblolly pine and southern red oak
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- This soil is well suited to haul roads and log landings.
- This soil is well suited to equipment operations.

Building sites
- The high content of sand or gravel in the soil increases sloughing and causes cutbanks to be more susceptible to caving.

Septic tank absorption fields
- Because the excessive permeability limits the proper treatment of the effluent from conventional septic systems, the water table may become polluted.
- This soil is well suited to septic tank absorption fields.

Local roads and streets
- This soil is well suited to local roads and streets.

Interpretive Groups

Prime farmland: All areas are prime farmland
Land capability class: 1
Virginia soil management group: T
Hydric soil: No

24B—Suffolk fine sandy loam, 2 to 6 percent slopes

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Marine terrace on coastal plain
Position on the landform: Gently sloping convex areas on summits and shoulders
Size of areas: 5 to 30 acres
Shape of areas: Oval or irregular

Map Unit Composition

Suffolk and similar soils: Typically 95 percent, ranging from about 80 to 95 percent

Typical Profile

Surface layer:
0 to 8 inches—brown fine sandy loam

Subsurface layer:
8 to 16 inches—yellowish brown sandy loam

Subsoil:
16 to 21 inches—yellowish brown sandy loam
21 to 28 inches—dark yellowish brown sandy loam
28 to 37 inches—strong brown sandy clay loam
37 to 43 inches—strong brown sandy loam

Substratum:
43 to 59 inches—yellowish brown loamy sand
59 to 65 inches—very pale brown, brownish yellow, and yellowish brown sand

Minor Components

Dissimilar components:
- Craven soils, which are moderately well drained and have more clay in the subsoil than the Suffolk soil; in concave landscape positions
- Slagle soils, which are moderately well drained; in concave landscape positions
- Emporia soils, which are well drained and have more clay in the underlying material than the Suffolk soil; in similar landscape positions

Similar components:
- Rumford soils, which are well drained and have less clay in the subsoil than the Suffolk soil; in similar landscape positions

Soil Properties and Qualities

Available water capacity: Moderate (about 6.8 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches

Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Low
Surface fragments: None
Parent material: Loamy marine deposits

Use and Management Considerations

Cropland
Suitability: Moderately suited to corn; well suited to soybeans and wheat; not suited to alfalfa hay
- The rate of surface runoff, the erosion hazard, and the amount of nutrient loss are increased because of the slope.

Pastureland
Suitability: Well suited to pasture
- The hazard of erosion, the rate of surface runoff, and the amount of nutrient loss are increased because of the slope.

Woodland
Suitability: Moderately suited to loblolly pine and southern red oak
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- This soil is well suited to haul roads and log landings.
- This soil is well suited to equipment operations.

Building sites
- The high content of sand or gravel in the soil increases sloughing and causes cutbanks to be more susceptible to caving.

Septic tank absorption fields
- Because the excessive permeability limits the proper treatment of the effluent from conventional septic systems, the water table may become polluted.
- This soil is well suited to septic tank absorption fields.

Local roads and streets
- This soil is well suited to local roads and streets.

Interpretive Groups

Prime farmland: All areas are prime farmland
Land capability class: 2e
Virginia soil management group: T
Hydric soil: No

25B—Tarboro-Bojac complex, 0 to 6 percent slopes, very rarely flooded

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Stream terrace on coastal plain
Position on the landform: Convex treads

Size of areas: 3 to 40 acres
Shape of areas: Broad and irregular

Map Unit Composition

Tarboro and similar soils: Typically 60 percent, ranging from about 55 to 70 percent
Bojac and similar soils: Typically 35 percent, ranging from about 25 to 40 percent

Typical Profile

Tarboro
Surface layer:
0 to 7 inches—brown sand

Substratum:
7 to 32 inches—yellowish brown sand
32 to 58 inches—yellowish brown and reddish yellow sand
58 to 62 inches—yellowish brown sand

Bojac
Surface layer:
0 to 6 inches—light yellowish brown sandy loam

Subsurface layer:
6 to 12 inches—yellowish brown fine sandy loam

Subsoil:
12 to 21 inches—strong brown fine sandy loam
21 to 40 inches—strong brown fine sandy loam
40 to 46 inches—reddish yellow fine sandy loam

Substratum:
46 to 65 inches—very pale brown fine sand

Minor Components

Dissimilar components:
- Tomotley soils, which are poorly drained; in linear or concave landscape positions

Similar components:
- State soils, which have more clay in the subsoil; in similar landscape positions

Soil Properties and Qualities

Available water capacity: Tarboro—very low (about 2.6 inches); Bojac—moderate (about 6.2 inches)
Slowest saturated hydraulic conductivity: Tarboro—high (about 5.95 in/hr); Bojac—high (about 1.98 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Tarboro—somewhat excessively drained; Bojac—well drained
Depth to seasonal water saturation: Tarboro—more than 6 feet; Bojac—about 48 to 72 inches
Flooding hazard: Very rare
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Very low
Surface fragments: None
Parent material: Alluvium

Use and Management Considerations

Cropland
Suitability: Poorly suited to corn and soybeans; moderately suited to wheat; not suited to alfalfa hay
- The rate of surface runoff, the erosion hazard, and the amount of nutrient loss are increased because of the slope.
- Sandy or coarse textured layers accelerate the rate at which plant nutrients are leached.
- Soil crusting results in a decrease in water infiltration and hinders the emergence of seedlings.

Pastureland
Suitability: Well suited to pasture
- The hazard of erosion, the rate of surface runoff, and the amount of nutrient loss are increased because of the slope.

Woodland
Suitability: Poorly suited to loblolly pine
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- Coarse textured soil layers may slough, thus reducing the efficiency of mechanical planting equipment.
- The coarseness of the soil material may reduce the traction of wheeled harvest equipment and log trucks.
- Coarse textured soil layers increase the maintenance of haul roads and log landings.

Building sites
- The seasonal high water table may restrict the period when excavations can be made.

Septic tank absorption fields
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.
- Because the excessive permeability limits the proper treatment of the effluent from conventional septic systems, the water table may become polluted.

Local roads and streets
- These soils are well suited to local roads and streets.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: Tarboro—3s; Bojac—2e
Virginia soil management group: Tarboro—II; Bojac—DD
Hydric soils: No

26A—Tomotley-Roanoke complex, 0 to 2 percent slopes, rarely flooded

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Stream terrace on coastal plain

Position on the landform: Nearly level linear or concave treads
Size of areas: 3 to 40 acres
Shape of areas: Broad and irregular

Map Unit Composition

Tomotley and similar soils: Typically 55 percent, ranging from about 50 to 65 percent
Roanoke and similar soils: Typically 30 percent, ranging from about 20 to 45 percent

Typical Profile

Tomotley
Surface layer:
0 to 5 inches—dark grayish brown sandy loam; brown masses of oxidized iron

Subsoil:
5 to 11 inches—grayish brown loam; yellowish brown masses of oxidized iron
11 to 19 inches—gray sandy loam; yellowish brown masses of oxidized iron
19 to 33 inches—gray sandy clay loam; strong brown and yellowish brown masses of oxidized iron
33 to 45 inches—light brownish gray sandy clay loam; dark yellowish brown masses of oxidized iron

Substratum:
45 to 62 inches—gray sandy loam; yellowish brown masses of oxidized iron

Roanoke
Surface layer:
0 to 5 inches—very dark grayish brown loam

Subsoil:
5 to 10 inches—dark grayish brown clay loam; grayish brown iron depletions and brownish yellow masses of oxidized iron
10 to 30 inches—grayish brown clay; brownish yellow masses of oxidized iron
30 to 36 inches—light brownish gray clay
36 to 42 inches—light brownish gray sandy clay loam; brownish yellow masses of oxidized iron

Substratum:
42 to 62 inches—light brownish gray stratified loamy sand to sandy loam to clay loam; brownish yellow masses of oxidized iron

Minor Components

Dissimilar components:
- Bibb soils, which are poorly drained and have less clay throughout than the Roanoke soil; on flood plains

Soil Properties and Qualities

Available water capacity: Moderate (about 8.1 inches)
Slowest saturated hydraulic conductivity: Tomotley—moderately high (about 0.20 in/hr); Roanoke—about 0.00 in/hr
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Poorly drained
Depth to seasonal water saturation: About 0 to 12 inches
Water table (kind): Apparent
Flooding hazard: Rare

Ponding hazard: None
Shrink-swell potential: Tomotley—low; Roanoke—moderate
Runoff class: Very high
Surface fragments: None
Parent material: Alluvium

Use and Management Considerations

Cropland
Suitability: Poorly suited to corn, soybeans, and wheat; not suited to alfalfa hay
- The high clay content restricts the rooting depth of crops.
- The seasonal high water table restricts equipment operation, decreases the viability of crops, and interferes with the planting and harvesting of crops.

Pastureland
Suitability: Well suited to pasture
- The seasonal high water table can affect equipment use, grazing patterns, and the viability of grass and legume species.

Woodland
Suitability: Well suited to loblolly pine
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- Soil wetness may limit the use of log trucks.
- The low strength interferes with the construction of haul roads and log landings.
- The low strength may create unsafe conditions for log trucks.
- The stickiness of the soil reduces the efficiency of mechanical planting equipment.
- The stickiness of the soil restricts the use of equipment for site preparation to the drier periods.

Building sites
- Flooding is a limitation affecting building site development.
- The seasonal high water table may restrict the period when excavations can be made.

Septic tank absorption fields
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.

Local roads and streets
- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of the soil.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 4w
Virginia soil management group: Tomotley—OO; Roanoke—NN
Hydric soils: Yes

27C—Udorthents, loamy, 0 to 15 percent slopes

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Marine terrace on coastal plain

Map Unit Composition

Udorthents and similar soils: Typically 85 percent, ranging from about 80 to 100 percent

Definition

Udorthents consist of excavations and fill material. The thickness of the fill material varies but is generally more than 20 inches. The fill material is generally soil materials ranging from loamy sand to clay.

Use and Management Considerations

Onsite investigation is needed to determine the suitability for specific uses.

28A—Wedhadkee silt loam, 0 to 2 percent slopes, frequently flooded

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Flood plain on piedmont
Position on the landform: Linear or concave positions
Size of areas: 3 to 10 acres
Shape of areas: Irregularly rectangular or irregularly oval

Map Unit Composition

Wehadkee and similar soils: Typically 85 percent, ranging from about 80 to 95 percent

Typical Profile

Surface layer:
0 to 10 inches—brown and grayish brown loam

Subsoil:
10 to 32 inches—light brownish gray loam; yellowish brown masses of oxidized iron
32 to 44 inches—gray clay loam; reddish yellow masses of oxidized iron

Substratum:
44 to 70 inches—light gray clay loam; reddish yellow masses of oxidized iron

Minor Components

Dissmilar components:
- Riverview soils, which are well drained; in higher convex landscape positions

Similar components:
- Soils that have less clay; in similar landscape positions
- Soils that have less than 50 percent gray iron depletions in the upper part of the subsoil; in higher linear or concave areas

Soil Properties and Qualities

Available water capacity: High (about 10.3 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches

Drainage class: Poorly drained
Depth to seasonal water saturation: About 0 to 12 inches
Water table (kind): Apparent
Flooding hazard: Frequent
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Very high
Surface fragments: None
Parent material: Alluvium

Use and Management Considerations

Cropland
- This soil is unsuited to cropland.

Pastureland
Suitability: Well suited to pasture
- Flooding may damage pastures.
- The seasonal high water table can affect equipment use, grazing patterns, and the viability of grass and legume species.
- Compaction may occur when the soil is wet.

Woodland
Suitability: Well suited to loblolly pine and yellow-poplar; moderately suited to sweetgum
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should focus on streamside management zones and stream crossings and should include general adherence to all applicable best management practices.
- Flooding may damage haul roads.
- Flooding restricts the safe use of roads by log trucks.
- Soil wetness may limit the use of log trucks.
- The low strength interferes with the construction of haul roads and log landings.
- The low strength may create unsafe conditions for log trucks.

Building sites
- Flooding is a limitation affecting building site development.
- The seasonal high water table may restrict the period when excavations can be made.

Septic tank absorption fields
- Flooding is a limitation affecting septic tank absorption fields.
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from conventional septic systems.

Local roads and streets
- Flooding may damage local roads and streets.
- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of the soil.
- The low strength may cause structural damage to local roads and streets.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: 6w
Virginia soil management group: MM
Hydric soil: Yes

29A—Wickham fine sandy loam, 0 to 2 percent slopes, very rarely flooded

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Stream terrace on coastal plain
Position on the landform: Convex treads
Size of areas: 3 to 20 acres
Shape of areas: Elongated or irregularly oval

Map Unit Composition

Wickham and similar soils: Typically 95 percent, ranging from about 80 to 95 percent

Typical Profile

Surface layer:
0 to 2 inches—dark grayish brown loamy fine sand

Subsurface layer:
2 to 15 inches—light yellowish brown loamy fine sand

Subsoil:
15 to 19 inches—strong brown fine sandy loam
19 to 37 inches—strong brown sandy clay loam

Substratum:
37 to 60 inches—strong brown and yellowish red loamy fine sand
60 to 70 inches—yellowish brown fine sand

Minor Components

Similar components:
- Altavista soils, which are moderately well drained; in lower linear or concave landscape positions
- Bojac soils, which have less clay in the subsoil; in similar landscape positions
- State soils, which have strong brown colors in the subsoil; in similar landscape positions

Soil Properties and Qualities

Available water capacity: Moderate (about 6.6 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: Very rare
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Low
Surface fragments: None
Parent material: Alluvium

Use and Management Considerations

Cropland
Suitability: Well suited to corn, soybeans, and wheat; moderately suited to alfalfa hay

- Soil crusting results in a decrease in water infiltration and hinders the emergence of seedlings.

Pastureland
- This soil is well suited to pasture.

Woodland
Suitability: Well suited to loblolly pine and southern red oak; moderately suited to yellow-poplar
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- This soil is well suited to haul roads and log landings.

Building sites
- This soil is unsuited to building sites because of the potential for flooding.

Septic tank absorption fields
- Because the excessive permeability limits the proper treatment of the effluent from conventional septic systems, the water table may become polluted.
- This soil is well suited to septic tank absorption fields.

Local roads and streets
- This soil is well suited to local roads and streets.

Interpretive Groups

Prime farmland: All areas are prime farmland
Land capability class: 2s
Virginia soil management group: B
Hydric soil: No

29B—Wickham fine sandy loam, 2 to 6 percent slopes, very rarely flooded

Setting

Major land resource area: Southern Coastal Plain (MLRA 133A)
Landform: Stream terrace on coastal plain
Position on the landform: Convex treads
Size of areas: 3 to 20 acres
Shape of areas: Elongated or irregularly oval

Map Unit Composition

Wickham and similar soils: Typically 95 percent, ranging from about 80 to 95 percent

Typical Profile

Surface layer:
0 to 2 inches—dark grayish brown loamy fine sand

Subsurface layer:
2 to 15 inches—light yellowish brown loamy fine sand

Subsoil:
15 to 19 inches—strong brown fine sandy loam
19 to 37 inches—strong brown sandy clay loam

Substratum:
37 to 60 inches—strong brown and yellowish red loamy fine sand
60 to 70 inches—yellowish brown fine sand

Minor Components

Similar components:
- Altavista soils, which are moderately well drained; in lower linear or concave landscape positions
- Bojac soils, which have less clay in the subsoil; in similar landscape positions
- State soils, which have strong brown colors in the subsoil; in similar landscape positions

Soil Properties and Qualities

Available water capacity: Moderate (about 6.6 inches)
Slowest saturated hydraulic conductivity: Moderately high (about 0.57 in/hr)
Depth class: Very deep (more than 60 inches)
Depth to root-restrictive feature: More than 60 inches
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: Very rare
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Low
Surface fragments: None
Parent material: Alluvium

Use and Management Considerations

Cropland
Suitability: Well suited to corn, soybeans, and wheat; moderately suited to alfalfa hay
- The rate of surface runoff, the erosion hazard, and the amount of nutrient loss are increased because of the slope.
- Soil crusting results in a decrease in water infiltration and hinders the emergence of seedlings.

Pastureland
Suitability: Well suited to pasture
- The hazard of erosion, the rate of surface runoff, and the amount of nutrient loss are increased because of the slope.

Woodland
Suitability: Well suited to loblolly pine and southern red oak; moderately suited to yellow-poplar
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality. A timber harvest plan should include general adherence to all applicable best management practices.
- This soil is well suited to haul roads and log landings.

Building sites
- This soil is unsuited to building sites because of the potential for flooding.

Septic tank absorption fields
- Because the excessive permeability limits the proper treatment of the effluent from conventional septic systems, the water table may become polluted.
- This soil is well suited to septic tank absorption fields.

Local roads and streets
- This soil is well suited to local roads and streets.

Interpretive Groups

Prime farmland: All areas are prime farmland
Land capability class: 2e
Virginia soil management group: B
Hydric soil: No

30E—Wateree-Rock outcrop complex, 25 to 70 percent slopes

Setting

Major land resource area: Southern Piedmont (MLRA 136)
Landform: Piedmont uplands
Position on the landform: Steep short, complex side slopes
Size of areas: 3 to 20 acres
Shape of areas: Elongated or irregularly oval
Note: This Wateree soil and Rock outcrop occur as areas so closely intermingled that they could not be separated at the scale selected for mapping.

Map Unit Composition

Wateree and similar soils: Typically 75 percent, ranging from about 70 to 95 percent
Rock outcrop and similar soils: Typically 15 percent, ranging from about 10 to 20 percent

Typical Profile

Wateree
Surface layer:
0 to 2 inches—grayish brown sandy loam

Subsurface layer:
2 to 9 inches—light yellowish brown sandy loam

Subsoil:
9 to 22 inches—yellowish brown sandy loam; common yellowish brown and common yellowish red mottles

Soft bedrock:
22 to 80 inches—weathered bedrock

Rock outcrop
This part of the map unit consists of hard granite and granite gneiss bedrock at or above the surface of the surrounding soils.

Minor Components

Dissimilar components:
- Helena soils, which are moderately well drained
- Cecil soils, which are redder

Properties and Qualities of the Wateree Soil

Available water capacity: Very low (about 2.4 inches)
Slowest saturated hydraulic conductivity: High (about 5.95 in/hr)
Depth class: Moderately deep (20 to 40 inches)

Depth to root-restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Depth to seasonal water saturation: More than 6 feet
Flooding hazard: None
Ponding hazard: None
Shrink-swell potential: Low
Runoff class: Very high
Surface fragments: None
Parent material: Residuum weathered from granite and gneiss

Use and Management Considerations

Cropland
- This map unit is unsuited to cropland.

Pastureland
- This map unit is unsuited to pastureland.

Woodland
Suitability: Moderately suited to loblolly pine, southern red oak, and yellow-poplar
- Proper planning for timber harvesting is essential in order to minimize the potential negative impact to soil and water quality, especially in areas on steeper slopes. A timber harvest plan should focus on the proper location of haul roads and skid trails, and careful attention should be given to all applicable best management practices.
- The slope poses safety hazards and creates a potential for erosion during the construction of haul roads and log landings.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks and harvesting equipment.
- Because of the slope, the use of equipment for planting and seeding is impractical.
- The slope makes the use of mechanical planting equipment impractical.

Building sites
- The slope influences the use of machinery and the amount of excavation required.
- Because of the nature and depth of the soft bedrock, the ease of excavation is reduced and the difficulty of constructing foundations and installing utilities is increased.
- Because of rock outcrops, rock removal may be needed.

Septic tank absorption fields
- The restricted permeability limits the absorption and proper treatment of the effluent from conventional septic systems.
- Because of the limited depth to bedrock, the filtering capacity of the soil is reduced and the difficulty of properly installing the effluent distribution lines is increased.
- The slope limits the proper treatment of effluent from conventional septic systems.
- Because of rock outcrops, special design of septic tank absorption fields is needed.

Local roads and streets
- Because of the slope, designing local roads and streets is difficult.
- Because of rock outcrops, special design of the grade of local roads and streets and special consideration of their location are needed to avoid rock removal.

Interpretive Groups

Prime farmland: Not prime farmland
Land capability class: Wateree—7s; Rock outcrop—none assigned
Virginia soil management group: Wateree—FF; Rock outcrop—none assigned
Hydric soils: No

W—Water

This map unit includes streams, rivers, and ponds or other areas covered with water most of the year. It is not assigned any interpretive groups.

Use and Management of the Soils

This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help to prevent soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavioral characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as rangeland and forestland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreational facilities; and for agricultural waste management. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern in harmony with the natural soil.

Contractors can use this survey to locate sources of gravel, sand, reclamation material, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

Interpretive Ratings

The interpretive tables in this survey rate the soils in the survey area for various uses. Many of the tables identify the limitations that affect specified uses and indicate the severity of those limitations. The ratings in these tables are both verbal and numerical.

Rating Class Terms

Rating classes are expressed in the tables in terms that indicate the extent to which the soils are limited by all of the soil features that affect a specified use or in terms that indicate the suitability of the soils for the use. Thus, the tables may show limitation classes or suitability classes. Terms for the limitation classes are *not limited, somewhat limited,* and *very limited*. The suitability ratings are expressed as *well suited, moderately suited, poorly suited,* and *unsuited* or as *good, fair,* and *poor*.

Numerical Ratings

Numerical ratings in the tables indicate the relative severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate

gradations between the point at which a soil feature has the greatest negative impact on the use and the point at which the soil feature is not a limitation. The limitations appear in order from the most limiting to the least limiting. Thus, if more than one limitation is identified, the most severe limitation is listed first and the least severe one is listed last.

Crops and Pasture

General management needed for crops and pasture is suggested in this section. The estimated yields of the main crops and pasture plants are listed, and the system of land capability classification used by the Natural Resources Conservation Service is explained.

Effective pasture management practices include maintaining a mixture of grasses and legumes, rotating pasture, deferring grazing, controlling undesirable vegetation, and using proper stocking rates.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under the heading "Detailed Soil Map Units." Specific information can be obtained from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

Yields per Acre

The average yields per acre that can be expected of the principal crops under a high level of management are shown in table 5. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors. The land capability classification and the Virginia soil management group of map units in the survey area also is shown in the table.

The yields are based VALUES—the Virginia Agronomic Land Use Evaluation System (Virginia Polytechnic Institute and State University, 1994). Available yield data from nearby counties and results of field trials and demonstrations also are considered.

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, barnyard manure, and green manure crops; and harvesting that ensures the smallest possible loss.

Realistic yield goals can be maintained over a long-term basis through proper nutrient management and other soil amendments such as lime. Applications of nitrogen and phosphorus from organic and inorganic forms should be done according to approved nutrient management practices and regulations.

Pasture yields are expressed in terms of animal unit months. An animal unit month (AUM) is the amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in the yields table are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local

office of the Natural Resources Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils for those crops.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for forestland, or for engineering purposes.

In the capability system, soils are generally grouped at three levels—capability class, subclass, and unit (USDA-SCS, 1961). Only class and subclass are used in this survey.

Capability classes, the broadest groups, are designated by the numbers 1 through 8. The numbers indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class 1 soils have slight limitations that restrict their use.

Class 2 soils have moderate limitations that restrict the choice of plants or that require moderate conservation practices.

Class 3 soils have severe limitations that restrict the choice of plants or that require special conservation practices, or both.

Class 4 soils have very severe limitations that restrict the choice of plants or that require very careful management, or both.

Class 5 soils are subject to little or no erosion but have other limitations, impractical to remove, that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 6 soils have severe limitations that make them generally unsuitable for cultivation and that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 7 soils have very severe limitations that make them unsuitable for cultivation and that restrict their use mainly to grazing, forestland, or wildlife habitat.

Class 8 soils and miscellaneous areas have limitations that preclude commercial plant production and that restrict their use to recreational purposes, wildlife habitat, watershed, or esthetic purposes.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e, w, s,* or *c,* to the class numeral, for example, 2e. The letter *e* shows that the main hazard is the risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c,* used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

In class 1 there are no subclasses because the soils of this class have few limitations. Class 5 contains only the subclasses indicated by *w, s,* or *c* because the soils in class 5 are subject to little or no erosion. They have other limitations that restrict their use to pasture, rangeland, forestland, wildlife habitat, or recreation.

The capability classification of the soils in this survey area is given in the section “Detailed Soil Map Units” and in the yields table.

Virginia Soil Management Groups

The Virginia Agronomic Land Use Evaluation System (VALUES) is a system that ranks soils for management and productivity (Virginia Polytechnic Institute and State University, 1994). VALUES places each soil series in Virginia into one of 43 management groups. The format of the management groups, A through QQ, include the following soil characteristics—regional occurrence; parent material; landscape position or influence; solum thickness; dominant profile features, such as texture; available water capacity for plants; and internal soil drainage. Yields that are both economically and environmentally feasible were assigned to each management group, based on yields of field trial crop data and research. The following paragraphs describe the soil management groups in Caroline County.

Group B. The soils of this group formed in alluvial parent materials and are on nearly level or gently sloping flood plains or stream terraces in the Coastal Plain region. These soils are very deep and have loamy textures throughout. They have a high available water capacity and are well drained or moderately well drained.

Group G. The soils of this group occur from the Piedmont region westward and formed in locally transported, medium textured sediments of either colluvial or alluvial origin that overlay a wide range of residual materials. These soils are in landscape positions ranging from footslopes and toeslopes to the heads of drainageways, to depressions, and to narrow upland drainageways. They are deep and have silty to loamy upper subsoils underlain with clayey to stony materials. They have a moderately high water-supplying capacity and are moderately well drained or somewhat poorly drained.

Group I. The soils of this group formed from alluvium along flood plains in the Coastal Plain and Piedmont provinces. These soils are somewhat prone to the hazard of flooding. They are deep, have predominantly clay loam subsurface horizons, have a moderately high water-supplying capacity, and are somewhat poorly drained.

Group K. The soils of this group formed from mixed marine and fluvial sediments in the Coastal Plain. These soils are on landscapes that range from stream terraces to broad, nearly level interfluves on uplands. They are very deep and have loamy surface layers and clay loam to clayey subsurface layers. They have a moderate available water capacity and are somewhat poorly drained.

Group R. The soils of this group formed from marine sediments in the Coastal Plain on gently sloping uplands. These soils are very deep, have sandy loam surface layers and reddish yellow clay loam to clay subsurface layers, and may have redoximorphic features in the lower part of the subsoil. They have a moderate available water capacity and are moderately well drained or well drained.

Group S. The soils of this group formed from loamy coastal plain sediments on gently sloping uplands. These soils are very deep and have fine-loamy subsurface layers. They have a moderate or high available water capacity and are moderately well drained or well drained.

Group T. The soils of this group are located on uplands and stream terraces in the Coastal Plain, are deep, and formed from loamy coastal plain sediments. These soils have fine-loamy subsurface textures, usually underlain by coarser sediments; have a moderate water-supplying capacity; and are well drained.

Group V. The soils of this group occur on upland landscapes in the Piedmont, are moderately deep, and formed from saprolites derived from a variety of parent materials ranging from slates to granites, gneisses, schists, and more basic granitic rocks. These soils have clayey subsurface horizons, have a moderate water-supplying capacity, and are well drained.

Group X. The soils of this group formed from a variety of residual materials, including slates, granites, gneisses, and schists. These soils have clayey subsurface

horizons, with coarse fragments or gravel in some areas, have a moderate water-supplying capacity, and are well drained or moderately well drained.

Group DD. The soils of this group formed from loamy coastal plain sediments and local alluvium and are on gently sloping uplands and stream terraces. These soils are very deep and have coarse-loamy subsurface layers. Some of the soils have arenic or very thick sandy surface layers. These soils have a moderately low available water capacity and are excessively drained.

Group EE. The soils of this group formed from loamy coastal plain sediments and are in low-lying landscape positions. These soils are very deep and have sandy to coarse-loamy subsurface layers. The water table is usually high during some part of the year. The soils have a low or moderately low available water capacity and are poorly drained or very poorly drained.

Group FF. The soils of this group extend across the Piedmont to the mountainous provinces and formed in residual parent materials ranging from sandstone, shales, and slates to loamy granitic saprolites and mountain colluvium. These soils are on steeply dissected uplands and mountain side slopes. They are moderately shallow and mostly have loamy-skeletal subsurface horizons that may contain 80 percent, or more, coarse fragments. As a result, the water-supplying capacity is low or very low. The soils are well drained or moderately well drained.

Group HH. The soils of this group formed in loamy alluvial sediments. These soils are on flood plains. They are very deep, have fine-loamy or clayey subsurface layers, and have a moderate available water capacity. The soils are moderately well drained or somewhat poorly drained.

Group II. The soils of this group formed in sandy coastal plain sediments. These soils are very deep, have sandy layers throughout, and have a very low or low available water capacity. They are moderately well drained to excessively drained.

Group KK. The soils of this group formed from a variety of residual materials, including Triassic sediments, residuum from basic rocks, and other clayey sediments. These soils are moderately deep and have clayey textured subsurface horizons, commonly with large components of high shrink-swell clays. They have a moderate water-supplying capacity and are moderately well drained or somewhat poorly drained.

Group LL. The soils of this group formed in clayey coastal plain sediments on low-lying landscapes. These soils are very deep and have clayey subsurface layers throughout. They have a moderate available water capacity and are somewhat poorly drained or poorly drained.

Group MM. The soils of this group occur on flood plains in the Coastal Plain, formed from loamy sediments, flood frequently, have a moderate or high water-supplying capacity, and are poorly drained.

Group NN. The soils of this group formed in alluvium along streams or on terraces. These soils are moderately deep, have silty to clay loam subsurface textures, have a moderately high water-supplying capacity, and are somewhat poorly drained or poorly drained.

Group OO. The soils of this group formed in loamy and silty coastal plain sediments on terraces and broad, nearly level uplands. These soils are very deep and have loamy to silty layers throughout. They have a high available water capacity and are poorly drained.

Group PP. The soils of this group formed in alluvium in marshes and tidal wetlands. These soils are very deep and have a combination of organic, clayey, or sulfidic layers. They have water tables at or near the soil surface and are saturated most of the time. The soils are poorly drained or very poorly drained.

The management groups for the map units in the survey area are given in the section “Detailed Soil Map Units” and in table 5.

Prime Farmland and Other Important Farmlands

Table 6 lists the map units in the survey area that are considered prime farmland, unique farmland, or farmland of statewide or local importance. This list does not constitute a recommendation for a particular land use.

In an effort to identify the extent and location of important farmlands, the Natural Resources Conservation Service, in cooperation with other interested Federal, State, and local government organizations, has inventoried land that can be used for the production of the Nation's food supply.

Prime farmland is of major importance in meeting the Nation's short- and long-range needs for food and fiber. Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, should encourage and facilitate the wise use of our Nation's prime farmland.

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forestland, or other land, but it is not urban or built-up land or water areas. The soil quality, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. The water supply is dependable and of adequate quality. Prime farmland is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it either is not frequently flooded during the growing season or is protected from flooding. Slope ranges mainly from 0 to 6 percent. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

About 145,856 acres in the survey area, or nearly 42 percent of the total acreage, meets the requirement for prime farmland. A recent trend in land use in some areas has been the loss of some prime farmland to industrial and urban uses. The loss of prime farmland to other uses puts pressure on marginal lands, which generally are more erodible, droughty, and less productive and cannot be easily cultivated.

Unique farmland is land other than prime farmland that is used for the production of specific high-value food and fiber crops, such as citrus, tree nuts, olives, cranberries, and other fruits and vegetables. It has the special combination of soil quality, growing season, moisture supply, temperature, humidity, air drainage, elevation, and aspect needed for the soil to economically produce sustainable high yields of these crops when properly managed. The water supply is dependable and of adequate quality. Nearness to markets is an additional consideration. Unique farmland is not based on national criteria. It commonly is in areas where there is a special microclimate, such as the wine country in California.

In some areas, land that does not meet the criteria for prime or unique farmland is considered to be *farmland of statewide importance* for the production of food, feed, fiber, forage, and oilseed crops. The criteria for defining and delineating farmland of statewide importance are determined by the appropriate State agencies. Generally, this land includes areas of soils that nearly meet the requirements for prime farmland and that economically produce high yields of crops when treated and managed according to acceptable farming methods. Some areas may produce as high a yield as prime farmland if conditions are favorable. Farmland of statewide importance may include tracts of land that have been designated for agriculture by State law.

In some areas that are not identified as having national or statewide importance,

land is considered to be *farmland of local importance* for the production of food, feed, fiber, forage, and oilseed crops. This farmland is identified by the appropriate local agencies. Farmland of local importance may include tracts of land that have been designated for agriculture by local ordinance.

Hydric Soils

Table 7 lists the map unit components that are rated as hydric soils in the survey area. This list can help in planning land uses; however, onsite investigation is recommended to determine the hydric soils on a specific site (National Research Council, 1995; Hurt and others, 2002).

The three essential characteristics of wetlands are hydrophytic vegetation, hydric soils, and wetland hydrology (Cowardin and others, 1979; U.S. Army Corps of Engineers, 1987; National Research Council, 1995; Tiner, 1985). Criteria for all of the characteristics must be met for areas to be identified as wetlands. Undrained hydric soils that have natural vegetation should support a dominant population of ecological wetland plant species. Hydric soils that have been converted to other uses should be capable of being restored to wetlands.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). These soils, under natural conditions, are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 2002). These criteria are used to identify map unit components that normally are associated with wetlands. The criteria used are selected estimated soil properties that are described in “Soil Taxonomy” (USDA-NRCS, 1999) and “Keys to Soil Taxonomy” (USDA-NRCS, 2003) and in the “Soil Survey Manual” (USDA-SCS, 1993).

If soils are wet enough for a long enough period of time to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils are specified in “Field Indicators of Hydric Soils in the United States” (Hurt and others, 2002).

Hydric soils are identified by examining and describing the soil to a depth of about 20 inches. This depth may be greater if determination of an appropriate indicator so requires. It is always recommended that soils be excavated and described to the depth necessary for an understanding of the redoximorphic processes. Then, using the completed soil descriptions, soil scientists can compare the soil features required by each indicator and specify which indicators have been matched with the conditions observed in the soil. The soil can be identified as a hydric soil if at least one of the approved indicators is present.

Map units that are dominantly made up of hydric soils may have small areas, or inclusions, of nonhydric soils in the higher positions on the landform, and map units dominantly made up of nonhydric soils may have inclusions of hydric soils in the lower positions on the landform.

The following map units, in general, do not meet the definition of hydric soils because they do not have one of the hydric soil indicators. A portion of these map units, however, may include hydric soils. Onsite investigation is recommended to determine whether hydric soils occur and the location of the included hydric soils.

1A	Altavista fine sandy loam, 0 to 2 percent slopes, very rarely flooded
1B	Altavista fine sandy loam, 2 to 6 percent slopes, very rarely flooded
8A	Chewacla silt loam, 0 to 2 percent slopes, occasionally flooded
10E	Kempsville-Emporia-Remlik complex, 15 to 50 percent slopes
11B	Kempsville-Emporia complex, 2 to 6 percent slopes
11C	Kempsville-Emporia complex, 6 to 10 percent slopes
18A	Riverview silt loam, 0 to 2 percent slopes, occasionally flooded
22A	Slagle fine sandy loam, 0 to 2 percent slopes
22B	Slagle fine sandy loam, 2 to 6 percent slopes

Agricultural Waste Management

Soil properties are important considerations in areas where soils are used as sites for the treatment and disposal of organic waste and wastewater. Selection of soils with properties that favor waste management can help to prevent environmental damage.

Table 8, parts I, II, and III, show the degree and kind of soil limitations affecting the treatment of agricultural waste, including municipal and food-processing wastewater and effluent from lagoons or storage ponds. Municipal wastewater is the waste stream from a municipality. It contains domestic waste and may contain industrial waste. It may have received primary or secondary treatment. It is rarely untreated sewage. Food-processing wastewater results from the preparation of fruits, vegetables, milk, cheese, and meats for public consumption. In places it is high in content of sodium and chloride. In the context of this table, the effluent in lagoons and storage ponds is from facilities used to treat or store food-processing wastewater or domestic or animal waste. Domestic and food-processing wastewater is very dilute, and the effluent from the facilities that treat or store it commonly is very low in content of carbonaceous and nitrogenous material; the content of nitrogen commonly ranges from 10 to 30 milligrams per liter. The wastewater from animal waste treatment lagoons or storage ponds, however, has much higher concentrations of these materials, mainly because the manure has not been diluted as much as the domestic waste. The content of nitrogen in this wastewater generally ranges from 50 to 2,000 milligrams per liter. When wastewater is applied, checks should be made to ensure that nitrogen, heavy metals, and salts are not added in excessive amounts.

The ratings in the table are for waste management systems that not only dispose of and treat organic waste or wastewater but also are beneficial to crops (application of manure and food-processing waste, application of sewage sludge, and disposal of wastewater by irrigation) and for waste management systems that are designed only for the purpose of wastewater disposal and treatment (overland flow of wastewater, rapid infiltration of wastewater, and slow rate treatment of wastewater).

The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect agricultural waste management. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Application of manure and food-processing waste not only disposes of waste material but also can improve crop production by increasing the supply of nutrients in the soils where the material is applied. Manure is the excrement of livestock and poultry, and food-processing waste is damaged fruit and vegetables and the peelings, stems, leaves, pits, and soil particles removed in food preparation. The manure and food-processing waste are either solid, slurry, or liquid. Their nitrogen content varies. A high content of nitrogen limits the application rate. Toxic or otherwise dangerous wastes, such as those mixed with the lye used in food processing, are not considered in the ratings.

The ratings are based on the soil properties that affect absorption, plant growth, microbial activity, erodibility, the rate at which the waste is applied, and the method by which the waste is applied. The properties that affect absorption include permeability, depth to a water table, ponding, the sodium adsorption ratio, depth to bedrock or a cemented pan, and available water capacity. The properties that affect plant growth and microbial activity include reaction, the sodium adsorption ratio, salinity, and bulk density. The wind erodibility group, the soil erodibility factor K, and slope are considered in estimating the likelihood that wind erosion or water erosion will transport the waste material from the application site. Stones, cobbles, a water table, ponding, and flooding can hinder the application of waste. Permanently frozen soils are unsuitable for waste treatment.

Application of sewage sludge not only disposes of waste material but also can improve crop production by increasing the supply of nutrients in the soils where the material is applied. In the context of this table, sewage sludge is the residual product of the treatment of municipal sewage. The solid component consists mainly of cell mass, primarily bacteria cells that developed during secondary treatment and have incorporated soluble organics into their own bodies. The sludge has small amounts of sand, silt, and other solid debris. The content of nitrogen varies. Some sludge has constituents that are toxic to plants or hazardous to the food chain, such as heavy metals and exotic organic compounds, and should be analyzed chemically prior to use.

The content of water in the sludge ranges from about 98 percent to less than 40 percent. The sludge is considered liquid if it is more than about 90 percent water, slurry if it is about 50 to 90 percent water, and solid if it is less than about 50 percent water.

The ratings in the table are based on the soil properties that affect absorption, plant growth, microbial activity, erodibility, the rate at which the sludge is applied, and the method by which the sludge is applied. The properties that affect absorption, plant growth, and microbial activity include permeability, depth to a water table, ponding, the sodium adsorption ratio, depth to bedrock or a cemented pan, available water capacity, reaction, salinity, and bulk density. The wind erodibility group, the soil erodibility factor K, and slope are considered in estimating the likelihood that wind erosion or water erosion will transport the waste material from the application site. Stones, cobbles, a water table, ponding, and flooding can hinder the application of sludge. Permanently frozen soils are unsuitable for waste treatment.

Disposal of wastewater by irrigation not only disposes of municipal wastewater and wastewater from food-processing plants, lagoons, and storage ponds but also can improve crop production by increasing the amount of water available to crops. The ratings in the table are based on the soil properties that affect the design, construction, management, and performance of the irrigation system. The properties that affect design and management include the sodium adsorption ratio, depth to a water table, ponding, available water capacity, permeability, slope, and flooding. The properties that affect construction include stones, cobbles, depth to bedrock or a cemented pan, depth to a water table, and ponding. The properties that affect performance include depth to bedrock or a cemented pan, bulk density, the sodium adsorption ratio, salinity,

reaction, and the cation-exchange capacity, which is used to estimate the capacity of a soil to adsorb heavy metals. Permanently frozen soils are not suitable for disposal of wastewater by irrigation.

Overland flow of wastewater is a process in which wastewater is applied to the upper reaches of sloped land and allowed to flow across vegetated surfaces, sometimes called terraces, to runoff-collection ditches. The length of the run generally is 150 to 300 feet. The application rate ranges from 2.5 to 16.0 inches per week. It commonly exceeds the rate needed for irrigation of cropland. The wastewater leaves solids and nutrients on the vegetated surfaces as it flows downslope in a thin film. Most of the water reaches the collection ditch, some is lost through evapotranspiration, and a small amount may percolate to the ground water.

The ratings in the table are based on the soil properties that affect absorption, plant growth, microbial activity, and the design and construction of the system. Reaction and the cation-exchange capacity affect absorption. Reaction, salinity, and the sodium adsorption ratio affect plant growth and microbial activity. Slope, permeability, depth to a water table, ponding, flooding, depth to bedrock or a cemented pan, stones, and cobbles affect design and construction. Permanently frozen soils are unsuitable for waste treatment.

Rapid infiltration of wastewater is a process in which wastewater applied in a level basin at a rate of 4 to 120 inches per week percolates through the soil. The wastewater may eventually reach the ground water. The application rate commonly exceeds the rate needed for irrigation of cropland. Vegetation is not a necessary part of the treatment; hence, the basins may or may not be vegetated. The thickness of the soil material needed for proper treatment of the wastewater is more than 72 inches. As a result, geologic and hydrologic investigation is needed to ensure proper design and performance and to determine the risk of ground-water pollution.

The ratings in the table are based on the soil properties that affect the risk of pollution and the design, construction, and performance of the system. Depth to a water table, ponding, flooding, and depth to bedrock or a cemented pan affect the risk of pollution and the design and construction of the system. Slope, stones, and cobbles also affect design and construction. Permeability and reaction affect performance. Permanently frozen soils are unsuitable for waste treatment.

Slow rate treatment of wastewater is a process in which wastewater is applied to land at a rate normally between 0.5 inch and 4.0 inches per week. The application rate commonly exceeds the rate needed for irrigation of cropland. The applied wastewater is treated as it moves through the soil. Much of the treated water may percolate to the ground water, and some enters the atmosphere through evapotranspiration. The applied water generally is not allowed to run off the surface. Waterlogging is prevented either through control of the application rate or through the use of tile drains, or both.

The ratings in the table are based on the soil properties that affect absorption, plant growth, microbial activity, erodibility, and the application of waste. The properties that affect absorption include the sodium adsorption ratio, depth to a water table, ponding, available water capacity, permeability, depth to bedrock or a cemented pan, reaction, the cation-exchange capacity, and slope. Reaction, the sodium adsorption ratio, salinity, and bulk density affect plant growth and microbial activity. The wind erodibility group, the soil erodibility factor K, and slope are considered in estimating the likelihood of wind erosion or water erosion. Stones, cobbles, a water table, ponding, and flooding can hinder the application of waste. Permanently frozen soils are unsuitable for waste treatment.

Forestland Productivity and Management

The tables described in this section can help forest owners or managers plan the use of soils for wood crops. They show the potential productivity of the soils for wood

crops and rate the soils according to the limitations that affect various aspects of forestland management.

Forestland Productivity

In table 9, the *potential productivity* of merchantable or *common trees* on a soil is expressed as a site index and as a volume number. The *site index* is the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years. The site index applies to fully stocked, even-aged, unmanaged stands. Commonly grown trees are those that forest managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability. More detailed information regarding site index is available in the "National Forestry Manual," which is available in local offices of the Natural Resources Conservation Service or on the Internet (http://soils.usda.gov/technical/).

The *volume of wood fiber*, a number, is the yield likely to be produced by the most important tree species. This number, expressed as cubic feet per acre per year and calculated at the age of culmination of the mean annual increment (CMAI), indicates the amount of fiber produced in a fully stocked, even-aged, unmanaged stand.

Trees to manage are those that are preferred for planting, seeding, or natural regeneration and those that remain in the stand after thinning or partial harvest.

Forestland Management

In table 10, parts I through V, interpretive ratings are given for various aspects of forestland management. The ratings are both verbal and numerical.

Some rating class terms indicate the degree to which the soils are suited to a specified aspect of forestland management. *Well suited* indicates that the soil has features that are favorable for the specified management aspect and has no limitations. Good performance can be expected, and little or no maintenance is needed. *Moderately suited* indicates that the soil has features that are moderately favorable for the specified management aspect. One or more soil properties are less than desirable, and fair performance can be expected. Some maintenance is needed. *Poorly suited* indicates that the soil has one or more properties that are unfavorable for the specified management aspect. Overcoming the unfavorable properties requires special design, extra maintenance, and costly alteration. *Unsuited* indicates that the expected performance of the soil is unacceptable for the specified management aspect or that extreme measures are needed to overcome the undesirable soil properties.

Proper planning for timber harvesting is essential to minimize the potential impact to soil and water quality. A harvest plan should include logging roads, log decks, streamside management zones, stream crossings, skid trails, schedule of activities, and Best Management Practices (BMPs) for each activity. Forests should be managed to increase economic and environmental benefits. A forest stewardship plan should be developed to guide management and utilization of the woodlands.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the specified aspect of forestland management (1.00) and the point at which the soil feature is not a limitation (0.00).

Rating class terms for fire damage and seedling mortality are expressed as *low, moderate,* and *high*. Where these terms are used, the numerical ratings indicate gradations between the point at which the potential for fire damage or seedling mortality is highest (1.00) and the point at which the potential is lowest (0.00).

The paragraphs that follow indicate the soil properties considered in rating the soils. More detailed information about the criteria used in the ratings is available in the "National Forestry Manual," which is available in local offices of the Natural Resources Conservation Service or on the Internet (http://soils.usda.gov/technical/).

For *limitations affecting construction of haul roads and log landings*, the ratings are based on slope, flooding, permafrost, plasticity index, the hazard of soil slippage, content of sand, the Unified classification, rock fragments on or below the surface, depth to a restrictive layer that is indurated, depth to a water table, and ponding. The limitations are described as slight, moderate, or severe. A rating of *slight* indicates that no significant limitations affect construction activities, *moderate* indicates that one or more limitations can cause some difficulty in construction, and *severe* indicates that one or more limitations can make construction very difficult or very costly.

The ratings of *suitability for log landings* are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, ponding, flooding, and the hazard of soil slippage. The soils are described as well suited, moderately suited, or poorly suited to use as log landings.

Ratings in the column *soil rutting hazard* are based on depth to a water table, rock fragments on or below the surface, the Unified classification, depth to a restrictive layer, and slope. Ruts form as a result of the operation of forest equipment. The hazard is described as slight, moderate, or severe. A rating of *slight* indicates that the soil is subject to little or no rutting, *moderate* indicates that rutting is likely, and *severe* indicates that ruts form readily.

Ratings in the column *hazard of off-road or off-trail erosion* are based on slope and on soil erodibility factor K. The soil loss is caused by sheet or rill erosion in off-road or off-trail areas where 50 to 75 percent of the surface has been exposed by logging, grazing, mining, or other kinds of disturbance. The hazard is described as slight, moderate, severe, or very severe. A rating of *slight* indicates that erosion is unlikely under ordinary climatic conditions; *moderate* indicates that some erosion is likely and that erosion-control measures may be needed; *severe* indicates that erosion is very likely and that erosion-control measures, including revegetation of bare areas, are advised; and *very severe* indicates that significant erosion is expected, loss of soil productivity and off-site damage are likely, and erosion-control measures are costly and generally impractical.

Ratings in the column *hazard of erosion on roads and trails* are based on the soil erodibility factor K, slope, and content of rock fragments. The ratings apply to unsurfaced roads and trails. The hazard is described as slight, moderate, or severe. A rating of *slight* indicates that little or no erosion is likely; *moderate* indicates that some erosion is likely, that the roads or trails may require occasional maintenance, and that simple erosion-control measures are needed; and *severe* indicates that significant erosion is expected, that the roads or trails require frequent maintenance, and that costly erosion-control measures are needed.

Ratings in the column *suitability for roads (natural surface)* are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, ponding, flooding, and the hazard of soil slippage. The ratings indicate the suitability for using the natural surface of the soil for roads. The soils are described as well suited, moderately suited, or poorly suited to this use.

Ratings in the columns *suitability for hand planting* and *suitability for mechanical planting* are based on slope, depth to a restrictive layer, content of sand, plasticity index, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, moderately suited, poorly suited, or unsuited to these methods of planting. It is assumed that necessary site preparation is completed before seedlings are planted.

Ratings in the column *suitability for use of harvesting equipment* are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified

classification, depth to a water table, and ponding. The soils are described as well suited, moderately suited, or poorly suited to this use.

Ratings in the column *suitability for mechanical site preparation (surface)* are based on slope, depth to a restrictive layer, plasticity index, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, poorly suited, or unsuited to this management activity. The part of the soil from the surface to a depth of about 1 foot is considered in the ratings.

Ratings in the column *suitability for mechanical site preparation (deep)* are based on slope, depth to a restrictive layer, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, poorly suited, or unsuited to this management activity. The part of the soil from the surface to a depth of about 3 feet is considered in the ratings.

Ratings in the column *potential for damage to soil by fire* are based on texture of the surface layer, content of rock fragments and organic matter in the surface layer, thickness of the surface layer, and slope. The soils are described as having a low, moderate, or high potential for this kind of damage. The ratings indicate an evaluation of the potential impact of prescribed fires or wildfires that are intense enough to remove the duff layer and consume organic matter in the surface layer.

Ratings in the column *potential for seedling mortality* are based on flooding, ponding, depth to a water table, content of lime, reaction, salinity, available water capacity, soil moisture regime, soil temperature regime, aspect, and slope. The soils are described as having a low, moderate, or high potential for seedling mortality.

Recreational Development

In table 11, parts I and II, the soils of the survey area are rated according to limitations that affect their suitability for recreational development. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the recreational uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The ratings in the table are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewer lines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation also are important. Soils that are subject to flooding are limited for recreational uses by the duration and intensity of flooding and the season when flooding occurs. In planning recreational facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

The information in this table can be supplemented by other information in this

survey, for example, interpretations for dwellings without basements, for local roads and streets, and for septic tank absorption fields.

Camp areas require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The ratings are based on the soil properties that affect the ease of developing camp areas and the performance of the areas after development. Slope, stoniness, and depth to bedrock or a cemented pan are the main concerns affecting the development of camp areas. The soil properties that affect the performance of the areas after development are those that influence trafficability and promote the growth of vegetation, especially in heavily used areas. For good trafficability, the surface of camp areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The ratings are based on the soil properties that affect the ease of developing picnic areas and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of picnic areas. For good trafficability, the surface of picnic areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Playgrounds require soils that are nearly level, are free of stones, and can withstand intensive foot traffic. The ratings are based on the soil properties that affect the ease of developing playgrounds and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of playgrounds. For good trafficability, the surface of the playgrounds should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Paths and trails for hiking and horseback riding should require little or no slope modification through cutting and filling. The ratings are based on the soil properties that affect trafficability and erodibility. These properties are stoniness, depth to a water table, ponding, flooding, slope, and texture of the surface layer.

Off-road motorcycle trails require little or no site preparation. They are not covered with surfacing material or vegetation. Considerable compaction of the soil material is likely. The ratings are based on the soil properties that influence erodibility, trafficability, dustiness, and the ease of revegetation. These properties are stoniness, slope, depth to a water table, ponding, flooding, and texture of the surface layer.

Golf fairways are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter

in the surface layer. The suitability of the soil for traps, tees, roughs, and greens is not considered in the ratings.

Engineering

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. Ratings are given for building site development, sanitary facilities, construction materials, and water management. The ratings are based on observed performance of the soils and on the data in the tables described under the heading “Soil Properties.”

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil between the surface and a depth of 5 to 7 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about particle-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 to 7 feet of the surface, soil wetness, depth to a water table, ponding, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kinds of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary estimates of construction conditions; evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; plan detailed onsite investigations of soils and geology; locate potential sources of gravel, sand, reclamation material, roadfill, and topsoil; plan structures for water management; and predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey, can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

Building Site Development

Soil properties influence the development of building sites, including the selection of the site, the design of the structure, construction, performance after construction, and maintenance. Table 12, parts I and II, show the degree and kind of soil limitations that

affect dwellings with and without basements, small commercial buildings, local roads and streets, shallow excavations, and lawns and landscaping.

The ratings in the table are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect building site development. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Dwellings are single-family houses of three stories or less. For dwellings without basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. For dwellings with basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of about 7 feet. The ratings for dwellings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility. Compressibility is inferred from the Unified classification. The properties that affect the ease and amount of excavation include depth to a water table, ponding, flooding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Small commercial buildings are structures that are less than three stories high and do not have basements. The foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. The ratings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility (which is inferred from the Unified classification). The properties that affect the ease and amount of excavation include flooding, depth to a water table, ponding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material; a base of gravel, crushed rock, or soil material stabilized by lime or cement; and a surface of flexible material (asphalt), rigid material (concrete), or gravel with a binder. The ratings are based on the soil properties that affect the ease of excavation and grading and the traffic-supporting capacity. The properties that affect the ease of excavation and grading are depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, depth to a water table, ponding, flooding, the amount of large stones, and slope. The properties that affect the traffic-supporting capacity are soil strength (as inferred from the AASHTO group index number), subsidence, linear extensibility (shrink-swell potential), the potential for frost action, depth to a water table, and ponding.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for graves, utility lines, open ditches, or other purposes. The ratings are based on the soil properties that influence the ease of digging and the resistance to sloughing. Depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, the amount of large stones, and dense layers influence the ease of digging, filling, and compacting. Depth to the seasonal high water table, flooding, and ponding may restrict the period when excavations can be made. Slope influences the ease of using machinery. Soil texture, depth to the water table, and linear extensibility (shrink-swell potential) influence the resistance to sloughing.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer.

Sanitary Facilities

Table 13, parts I and II, show the degree and kind of soil limitations that affect septic tank absorption fields, sewage lagoons, sanitary landfills, and daily cover for landfill. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 60 inches is evaluated. The ratings are based on the soil properties that affect absorption of the effluent, construction and maintenance of the system, and public health. Permeability, depth to a water table, ponding, depth to bedrock or a cemented pan, and flooding affect absorption of the effluent. Stones and boulders, ice, and bedrock or a cemented pan interfere with installation. Subsidence interferes with installation and maintenance. Excessive slope may cause lateral seepage and surfacing of the effluent in downslope areas.

Some soils are underlain by loose sand and gravel or fractured bedrock at a depth of less than 4 feet below the distribution lines. In these soils the absorption field may not adequately filter the effluent, particularly when the system is new. As a result, the ground water may become contaminated.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Nearly impervious

soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water. Considered in the ratings are slope, permeability, depth to a water table, ponding, depth to bedrock or a cemented pan, flooding, large stones, and content of organic matter.

Soil permeability is a critical property affecting the suitability for sewage lagoons. Most porous soils eventually become sealed when they are used as sites for sewage lagoons. Until sealing occurs, however, the hazard of pollution is severe. Soils that have a permeability rate of more than 2 inches per hour are too porous for the proper functioning of sewage lagoons. In these soils, seepage of the effluent can result in contamination of the ground water. Ground-water contamination is also a hazard if fractured bedrock is within a depth of 40 inches, if the water table is high enough to raise the level of sewage in the lagoon, or if floodwater overtops the lagoon.

A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and cemented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor. If the lagoon is to be uniformly deep throughout, the slope must be gentle enough and the soil material must be thick enough over bedrock or a cemented pan to make land smoothing practical.

A *trench sanitary landfill* is an area where solid waste is placed in successive layers in an excavated trench. The waste is spread, compacted, and covered daily with a thin layer of soil excavated at the site. When the trench is full, a final cover of soil material at least 2 feet thick is placed over the landfill. The ratings in the table are based on the soil properties that affect the risk of pollution, the ease of excavation, trafficability, and revegetation. These properties include permeability, depth to bedrock or a cemented pan, depth to a water table, ponding, slope, flooding, texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, onsite investigation may be needed.

Hard, nonrippable bedrock, creviced bedrock, or highly permeable strata in or directly below the proposed trench bottom can affect the ease of excavation and the hazard of ground-water pollution. Slope affects construction of the trenches and the movement of surface water around the landfill. It also affects the construction and performance of roads in areas of the landfill.

Soil texture and consistence affect the ease with which the trench is dug and the ease with which the soil can be used as daily or final cover. They determine the workability of the soil when dry and when wet. Soils that are plastic and sticky when wet are difficult to excavate, grade, or compact and are difficult to place as a uniformly thick cover over a layer of refuse.

The soil material used as the final cover for a trench landfill should be suitable for plants. It should not have excess sodium or salts and should not be too acid. The surface layer generally has the best workability, the highest content of organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

In an *area sanitary landfill*, solid waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site. A final cover of soil material at least 2 feet thick is placed over the completed landfill. The ratings in the table are based on the soil properties that affect trafficability and the risk of pollution. These properties include flooding, permeability, depth to a water table, ponding, slope, and depth to bedrock or a cemented pan.

Flooding is a serious problem because it can result in pollution in areas downstream from the landfill. If permeability is too rapid or if fractured bedrock, a fractured cemented pan, or the water table is close to the surface, the leachate can contaminate the water supply. Slope is a consideration because of the extra grading

required to maintain roads in the steeper areas of the landfill. Also, leachate may flow along the surface of the soils in the steeper areas and cause difficult seepage problems.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste. The ratings in the table also apply to the final cover for a landfill. They are based on the soil properties that affect workability, the ease of digging, and the ease of moving and spreading the material over the refuse daily during wet and dry periods. These properties include soil texture, depth to a water table, ponding, rock fragments, slope, depth to bedrock or a cemented pan, reaction, and content of salts, sodium, or lime.

Loamy or silty soils that are free of large stones and excess gravel are the best cover for a landfill. Clayey soils may be sticky and difficult to spread; sandy soils are subject to wind erosion.

Slope affects the ease of excavation and of moving the cover material. Also, it can influence runoff, erosion, and reclamation of the borrow area.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock, a cemented pan, or the water table to permit revegetation. The soil material used as the final cover for a landfill should be suitable for plants. It should not have excess sodium, salts, or lime and should not be too acid.

Construction Materials

Table 14, parts I and II, give information about the soils as potential sources of gravel, sand, reclamation material, roadfill, and topsoil. Normal compaction, minor processing, and other standard construction practices are assumed.

Gravel and *sand* are natural aggregates suitable for commercial use with a minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. In table 14, part I, only the likelihood of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material. The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the Unified classification of the soil), the thickness of suitable material, and the content of rock fragments. If the bottom layer of the soil contains sand or gravel, the soil is considered a likely source regardless of thickness. The assumption is that the sand or gravel layer below the depth of observation exceeds the minimum thickness.

The soils are rated *good, fair,* or *poor* as potential sources of sand and gravel. A rating of *good* or *fair* means that the source material is likely to be in or below the soil. The bottom layer and the thickest layer of the soils are assigned numerical ratings. These ratings indicate the likelihood that the layer is a source of sand or gravel. The number 0.00 indicates that the layer is a poor source. The number 1.00 indicates that the layer is a good source. A number between 0.00 and 1.00 indicates the degree to which the layer is a likely source.

In table 14, part II, the rating class terms are *good, fair,* and *poor*. The features that limit the soils as sources of these materials are specified in the table. The numerical ratings given after the specified features indicate the degree to which the features limit the soils as sources of reclamation material, roadfill, and topsoil. The lower the number, the greater the limitation.

Reclamation material is used in areas that have been drastically disturbed by surface mining or similar activities. When these areas are reclaimed, layers of soil material or unconsolidated geological material, or both, are replaced in a vertical sequence. The reconstructed soil favors plant growth. The ratings in the table do not apply to quarries and other mined areas that require an offsite source of

reconstruction material. The ratings are based on the soil properties that affect erosion and stability of the surface and the productive potential of the reconstructed soil. These properties include the content of sodium, salts, and calcium carbonate; reaction; available water capacity; erodibility; texture; content of rock fragments; and content of organic matter and other features that affect fertility.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the whole soil, from the surface to a depth of about 5 feet. It is assumed that soil layers will be mixed when the soil material is excavated and spread.

The ratings are based on the amount of suitable material and on soil properties that affect the ease of excavation and the performance of the material after it is in place. The thickness of the suitable material is a major consideration. The ease of excavation is affected by large stones, depth to a water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the AASHTO classification of the soil) and linear extensibility (shrink-swell potential).

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area. The ratings are based on the soil properties that affect plant growth; the ease of excavating, loading, and spreading the material; and reclamation of the borrow area. Toxic substances, soil reaction, and the properties that are inferred from soil texture, such as available water capacity and fertility, affect plant growth. The ease of excavating, loading, and spreading is affected by rock fragments, slope, depth to a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, depth to a water table, rock fragments, depth to bedrock or a cemented pan, and toxic material.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

Water Management

Table 15 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas; embankments, dikes, and levees; and aquifer-fed excavated ponds. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is

determined by the permeability of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. Embankments that have zoned construction (core and shell) are not considered. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

Aquifer-fed excavated ponds are pits or dugouts that extend to a ground-water aquifer or to a depth below a permanent water table. Excluded are ponds that are fed only by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Excavated ponds are affected by depth to a permanent water table, permeability of the aquifer, and quality of the water as inferred from the salinity of the soil. Depth to bedrock and the content of large stones affect the ease of excavation.

Soil Properties

Data relating to soil properties are collected during the course of the soil survey.

Soil properties are determined by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine particle-size distribution, plasticity, and compaction characteristics.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help to characterize key soils.

The estimates of soil properties are shown in tables. They include engineering index properties, physical and chemical properties, and pertinent soil and water features.

Engineering Properties

Table 16 gives the engineering classifications and the range of engineering properties for the layers of each soil in the survey area.

Depth to the upper and lower boundaries of each layer is indicated.

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. “Loam,” for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is 15 percent or more, an appropriate modifier is added, for example, “gravelly.” Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system (ASTM, 2005) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 2004).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to particle-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of particle-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional

refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest.

Rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

Physical Soil Properties

Table 17 shows estimates of some physical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Particle size is the effective diameter of a soil particle as measured by sedimentation, sieving, or micrometric methods. Particle sizes are expressed as classes with specific effective diameter class limits. The broad classes are sand, silt, and clay, ranging from the larger to the smaller.

Sand as a soil separate consists of mineral soil particles that are 0.05 millimeter to 2 millimeters in diameter. In the table, the estimated sand content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Silt as a soil separate consists of mineral soil particles that are 0.002 to 0.05 millimeter in diameter. In the table, the estimated silt content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In the table, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of sand, silt, and clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, saturated hydraulic conductivity (K_{sat}), plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at $^{1}/_{3}$- or $^{1}/_{10}$-bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In the table, the estimated moist bulk density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute linear extensibility,

shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Saturated hydraulic conductivity (K_{sat}) refers to the ability of a soil to transmit water or air. The estimates in the table indicate the rate of water movement, in micrometers per second, when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Saturated hydraulic conductivity (K_{sat}) is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at $^1/_3$- or $^1/_{10}$-bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. Volume change is influenced by the amount and type of clay minerals in the soil.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In the table, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained by returning crop residue to the soil. Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

Erosion factors are shown in the table as the K factor (Kw and Kf) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and saturated hydraulic conductivity (K_{sat}). Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor Kw indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Erosion factor Kf indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. The groups are as follows:

1. Coarse sands, sands, fine sands, and very fine sands.
2. Loamy coarse sands, loamy sands, loamy fine sands, loamy very fine sands, ash material, and sapric soil material.
3. Coarse sandy loams, sandy loams, fine sandy loams, and very fine sandy loams.

4L. Calcareous loams, silt loams, clay loams, and silty clay loams.

4. Clays, silty clays, noncalcareous clay loams, and silty clay loams that are more than 35 percent clay.
5. Noncalcareous loams and silt loams that are less than 20 percent clay and sandy clay loams, sandy clays, and hemic soil material.
6. Noncalcareous loams and silt loams that are more than 20 percent clay and noncalcareous clay loams that are less than 35 percent clay.
7. Silts, noncalcareous silty clay loams that are less than 35 percent clay, and fibric soil material.
8. Soils that are not subject to wind erosion because of coarse fragments on the surface or because of surface wetness.

Wind erodibility index is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

Chemical Soil Properties

Table 18 shows estimates of some chemical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Cation-exchange capacity is the total amount of extractable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. Soils having a low cation-exchange capacity hold fewer cations and may require more frequent applications of fertilizer than soils having a high cation-exchange capacity. The ability to retain cations reduces the hazard of ground-water pollution.

Effective cation-exchange capacity refers to the sum of extractable cations plus aluminum expressed in terms of milliequivalents per 100 grams of soil. It is determined for soils that have pH of less than 5.5.

Soil reaction is a measure of acidity or alkalinity. The pH of each soil horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Water Features

Table 19 gives estimates of various water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils

are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

Surface runoff refers to the loss of water from an area by flow over the land surface. Surface runoff classes are based on slope, climate, and vegetative cover. It is assumed that the surface of the soil is bare and that the retention of surface water resulting from irregularities in the ground surface is minimal. The classes are negligible, very low, low, medium, high, and very high.

The *months* in the table indicate the portion of the year in which the feature is most likely to be a concern.

Water table refers to a saturated zone in the soil. The table indicates, by month, depth to the top (*upper limit*) and base (*lower limit*) of the saturated zone in most years. Estimates of the upper and lower limits are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

Ponding is standing water in a closed depression. Unless a drainage system is installed, the water is removed only by percolation, transpiration, or evaporation. The table indicates *surface water depth* and the *duration* and *frequency* of ponding. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, rare, occasional, and frequent. *None* means that ponding is not probable; *rare* that it is unlikely but possible under unusual weather conditions (the chance of ponding is nearly 0 percent to 5 percent in any year); *occasional* that it occurs, on the average, once or less in 2 years (the chance of ponding is 5 to 50 percent in any year); and *frequent* that it occurs, on the average, more than once in 2 years (the chance of ponding is more than 50 percent in any year).

Flooding is the temporary inundation of an area caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

Duration and *frequency* are estimated. Duration is expressed as *extremely brief* if 0.1 hour to 4 hours, *very brief* if 4 hours to 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, very rare, rare, occasional, frequent, and very frequent. *None* means that flooding is not probable; *very rare* that it is very unlikely but possible under extremely unusual weather conditions (the chance of flooding is less than 1 percent in any year); *rare* that it is unlikely but possible under unusual weather conditions (the chance of flooding is 1

to 5 percent in any year); *occasional* that it occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year); *frequent* that it is likely to occur often under normal weather conditions (the chance of flooding is more than 50 percent in any year but is less than 50 percent in all months in any year); and *very frequent* that it is likely to occur very often under normal weather conditions (the chance of flooding is more than 50 percent in all months of any year).

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

Soil Features

Table 20 gives estimates of various soil features. The estimates are used in land use planning that involves engineering considerations.

A *restrictive layer* is a nearly continuous layer that has one or more physical, chemical, or thermal properties that significantly impede the movement of water and air through the soil or that restrict roots or otherwise provide an unfavorable root environment. Examples are bedrock, cemented layers, dense layers, and frozen layers. The table indicates the hardness of the restrictive layer, which significantly affects the ease of excavation. *Depth to top* is the vertical distance from the soil surface to the upper boundary of the restrictive layer.

Potential for frost action is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Temperature, texture, density, permeability, content of organic matter, and depth to the water table are the most important factors considered in evaluating the potential for frost action. It is assumed that the soil is not insulated by vegetation or snow and is not artificially drained. Silty and highly structured, clayey soils that have a high water table in winter are the most susceptible to frost action. Well drained, very gravelly, or very sandy soils are the least susceptible. Frost heave and low soil strength during thawing cause damage to pavements and other rigid structures.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that corrodes or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel or concrete in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than the steel or concrete in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low, moderate,* or *high,* is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion also is expressed as *low, moderate,* or *high*. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (USDA-NRCS, 1999 and 2003). Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. Table 21 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Twelve soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Ultisol.

SUBORDER. Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Udult (*Ud*, meaning humid, plus *ult*, from Ultisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; type of saturation; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Hapludults (*Hapl*, meaning minimal horizonation, plus *udult*, the suborder of the Ultisols that has a udic moisture regime).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic subgroup is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other taxonomic class. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that typifies the great group. An example is Typic Hapludults.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineralogy class, cation-exchange activity class, soil temperature regime, soil depth, and reaction class. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is fine-loamy, siliceous, subactive, thermic Typic Hapludults.

SERIES. The series consists of soils within a family that have horizons similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile.

Soil Series and Their Morphology

In this section, each soil series recognized in the survey area is described. Characteristics of the soil and the material in which it formed are identified for each series. A pedon, a small three-dimensional area of soil, that is typical of the series in

the survey area is described. The detailed description of each soil horizon follows standards in the “Soil Survey Manual” (USDA-SCS, 1993) and in the “Field Book for Describing and Sampling Soils” (Schoeneberger and others, 2002). Many of the technical terms used in the descriptions are defined in “Soil Taxonomy” (USDA-NRCS, 1999) and in “Keys to Soil Taxonomy” (USDA-NRCS, 2003). Unless otherwise indicated, colors in the descriptions are for moist soil. Following the pedon description is the range of important characteristics of the soils in the series.

Altavista Series

Physiographic province: Southern Coastal Plain
Landform: Stream terraces
Parent material: Loamy and sandy alluvial sediments
Drainage class: Moderately well drained
Slowest saturated hydraulic conductivity: Moderately high
Slope range: 0 to 6 percent

Associated Soils

- Bojac soils, which are well drained and have less clay in the subsoil
- Riverview soils, which are well drained and subject to frequent flooding
- Roanoke and Tomotley soils, which are poorly drained
- State and Wickham soils, which are well drained
- Wehadkee soils, which are poorly drained and subject to frequent flooding

Taxonomic Classification

Fine-loamy, mixed, semiactive, thermic Aquic Hapludults

Typical Pedon

Altavista fine sandy loam, 0 to 2 percent slopes, very rarely flooded; located approximately 1/2 mile east-southeast of Sparta, 300 yards south of Route 630 in a drain next to Jacks Creek; lat. 37 degrees 59 minutes 8.00 seconds N. and long. 77 degrees 12 minutes 43.00 seconds W.

A—0 to 12 inches; brown (10YR 4/3) fine sandy loam; weak fine granular structure; very friable, nonsticky, nonplastic; many fine roots; many fine and medium tubular pores; very strongly acid; clear smooth boundary.

E—12 to 16 inches; light yellowish brown (10YR 6/4) fine sandy loam; weak fine granular structure; very friable, nonsticky, nonplastic; many fine roots; common fine and medium tubular pores; few fine mica flakes; very strongly acid; clear smooth boundary.

BE—16 to 20 inches; yellowish brown (10YR 5/4) fine sandy loam; weak fine subangular blocky and weak medium granular structure; very friable, slightly sticky, slightly plastic; common fine roots; common fine and medium tubular pores; few fine mica flakes; very strongly acid; gradual smooth boundary.

Bt—20 to 34 inches; yellowish brown (10YR 5/6) sandy clay loam; moderate medium subangular blocky structure; friable, moderately sticky, moderately plastic; few fine roots; common fine and medium tubular pores; common faint clay films on all faces of peds; few fine mica flakes; very strongly acid; gradual smooth boundary.

BC—34 to 40 inches; brownish yellow (10YR 6/6) sandy loam; weak fine subangular blocky structure; friable, slightly sticky, slightly plastic; few fine roots; common fine tubular pores; few faint clay films on all faces of peds; common medium distinct strong brown (7.5YR 5/6) masses of oxidized iron and common medium prominent light gray (10YR 7/2) iron depletions; few fine mica flakes; very strongly acid; clear smooth boundary.

C—40 to 65 inches; brownish yellow (10YR 6/6) sand; massive; very friable, slightly sticky, slightly plastic; few fine and medium tubular pores; many medium prominent light gray (10YR 7/2) iron depletions; few fine mica flakes; very strongly acid.

Range in Characteristics

Solum thickness: 30 to 60 inches or more
Rock fragments: 0 to 5 percent gravel in the A, E, BE, and Bt horizons; 0 to 15 percent gravel in the C horizon in some pedons
Soil reaction: Extremely acid to moderately acid, except in limed areas
Mica flakes: Few or common the Bt and C horizons of most pedons

A horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—1 to 4
Texture—loamy sand, sandy loam, fine sandy loam, or loam

Ap horizon (where present):
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—1 to 4
Texture—loamy sand, sandy loam, fine sandy loam, or loam

E horizon:
Hue—10YR or 2.5Y
Value—5 to 7
Chroma—3 to 8
Texture—loamy sand, sandy loam, fine sandy loam, or loam

BE horizon:
Hue—7.5YR to 2.5Y
Value—5 to 7
Chroma—3 to 8
Texture—sandy loam, fine sandy loam, loam, or sandy clay loam

Bt horizon:
Hue—7.5YR to 2.5Y
Value—5 to 7
Chroma—3 to 8
Redoximorphic features—iron masses in shades of brown, yellow, or red; iron depletions in shades of olive or gray (iron depletions occur within the upper 24 inches of the Bt horizon)
Texture—sandy loam, fine sandy loam, loam, sandy clay loam, or clay loam

Btg horizon (where present):
Hue—10YR or 2.5Y
Value—5 to 7
Chroma—1 or 2
Redoximorphic features—iron masses in shades of brown, yellow, or red; iron depletions in shades of olive or gray
Texture—sandy loam, fine sandy loam, loam, sandy clay loam, or clay loam

BC horizon:
Hue—7.5YR to 2.5Y
Value—5 to 7
Chroma—3 to 8

Redoximorphic features—iron masses in shades of brown, yellow, or red; iron depletions in shades of olive or gray
Texture—sandy loam, fine sandy loam, loam, or sandy clay loam

C horizon:
Hue—7.5YR to 2.5Y
Value—4 to 7
Chroma—3 to 8
Redoximorphic features—iron masses in shades of brown, yellow, or red; iron depletions in shades of olive or gray
Texture—sand, fine sand, loamy sand, sandy loam, or fine sandy loam

Cg horizon (where present):
Hue—neutral or 7.5YR to 2.5Y
Value—4 to 7
Chroma—0 to 2
Redoximorphic features—iron masses in shades of brown, yellow, or red; iron depletions in shades of olive or gray
Texture—sand, fine sand, loamy sand, sandy loam, or fine sandy loam

Appling Series

Physiographic province: Southern Piedmont
Landform: Uplands
Parent material: Residuum weathered from granite and granite gneiss
Drainage class: Well drained
Slowest saturated hydraulic conductivity: Moderately high
Slope range: 2 to 15 percent

Associated Soils

- Cecil soils, which which are more red
- Wateree soils, which are moderately deep to bedrock

Taxonomic Classification

Fine, kaolinitic, thermic Typic Kanhapludults

Typical Pedon

Appling sandy loam, 2 to 7 percent slopes; located in a loblolly pine plantation, 500 feet south-southeast of the junction of Highways VA-602 and VA-676; Winterpock, Virginia USGS 7.5 Minute Quadrangles, NAD27; lat. 37 degrees 19 minutes 30.00 seconds N. and long. 77 degrees 41 minutes 7.00 seconds W.

A—0 to 4 inches; light olive brown (2.5Y 5/4) sandy loam; weak fine granular structure; very friable; many very fine and fine roots; 5 percent subangular quartzite gravel; very strongly acid; clear smooth boundary.
E—4 to 10 inches; light yellowish brown (2.5Y 6/4) sandy loam; weak fine granular structure; very friable; many medium and coarse roots; 15 percent subangular quartzite gravel; very strongly acid; clear smooth boundary.
BEt—10 to 13 inches; yellowish brown (10YR 5/8) clay loam; weak fine subangular blocky structure; friable, slightly sticky, slightly plastic; few fine and medium roots; few patchy clay films; 5 percent subangular quartzite gravel; very strongly acid; gradual smooth boundary.
Bt1—13 to 24 inches; strong brown (7.5YR 5/6) clay loam; moderate fine subangular blocky structure; friable, slightly sticky, slightly plastic; common continuous clay films; very strongly acid; gradual smooth boundary.

Bt2—24 to 30 inches; strong brown (7.5YR 5/6) clay; weak fine subangular blocky structure; friable, slightly sticky, slightly plastic; few patchy clay films; very strongly acid; clear smooth boundary.
Bt3—30 to 42 inches; strong brown (7.5YR 5/6), yellowish red (5YR 5/6), and red (2.5YR 4/8) clay; moderate fine subangular blocky structure; friable, slightly sticky, slightly plastic; common continuous clay films; very strongly acid; gradual smooth boundary.
BCt—42 to 60 inches; red (2.5YR 4/8) clay loam; weak fine subangular blocky structure; friable, slightly sticky, slightly plastic; few patchy clay films; very strongly acid; gradual smooth boundary.
C—60 to 72 inches; yellowish red (5YR 4/6) and strong brown (7.5YR 5/6) sandy loam; massive; very friable; very strongly acid.

Range in Characteristics

Solum thickness: 40 to 60 inches
Depth to bedrock: More than 5 feet
Rock fragments: 0 to 30 percent angular quartz gravel in the A and upper B horizons
Soil reaction: Very strongly acid or strongly acid throughout the profile, except in limed areas

A horizon:
Hue—2.5Y or 10YR
Value—4 to 6
Chroma—4 to 6
Texture (fine-earth fraction)—sandy loam

E horizon:
Hue—2.5Y or 10YR
Value—4 to 6
Chroma—4 to 6
Texture (fine-earth fraction)—sandy loam

BEt horizon:
Hue—5YR to 10YR
Value—5 or 6
Chroma—3 to 8
Texture (fine-earth fraction)—sandy clay loam or clay loam

Bt horizon:
Hue—5YR to 10YR
Value—4 to 6
Chroma—6 to 8
Texture (fine-earth fraction)—clay loam, sandy clay, or clay

BC horizon:
Hue—2.5YR to 10YR
Value—4 to 6
Chroma—6 to 8
Texture—sandy clay loam, sandy clay, or clay loam

C horizon:
Hue—2.5YR to 2.5Y
Value—4 to 8
Chroma—1 to 8
Texture—sandy loam or sandy clay loam

Bama Series

Physiographic province: Southern Coastal Plain
Landform: Marine terraces
Parent material: Loamy marine sediments
Drainage class: Well drained
Slowest saturated hydraulic conductivity: Moderately high
Slope range: 0 to 6 percent

Associated Soils

- Emporia soils, which have gray iron depletions in the lower part of the subsoil; in similar landscape positions
- Kempsville soils, which have a decrease in clay content within a depth of 60 inches; in similar landscape positions
- Slagle soils, which are moderately well drained and have gray iron depletions in the upper part of the subsoil; in more linear or concave landscape positions
- Suffolk soils, which have thinner sola; in similar landscape positions

Taxonomic Classification

Fine-loamy, siliceous, subactive, thermic Typic Paleudults

Typical Pedon

Bama sandy loam, 2 to 6 percent slopes; located in an area of mixed pines and hardwoods, 0.38 mile west of the junction of Highways VA-632 and VA-651, about 130 yards north of Highway VA-632 along a woodland road to Chesapeake research plots; King And Queen Court House, Virginia USGS 7.5 Minute Quadrangles, NAD27; lat. 37 degrees 37 minutes 50.00 seconds N. and long. 76 degrees 12 minutes 43.00 seconds W.

A—0 to 4 inches; dark grayish brown (10YR 4/2) sandy loam; weak medium granular structure; very friable; common fine and medium roots; common fine tubular pores; very strongly acid; clear wavy boundary.

E—4 to 13 inches; light yellowish brown (10YR 6/4) loam; weak medium subangular blocky structure; friable; common fine and medium roots; many medium tubular pores; very strongly acid; clear smooth boundary.

BE—13 to 19 inches; strong brown (7.5YR 5/6) loam; weak medium subangular blocky structure; friable; common fine and medium roots; many medium tubular pores; very strongly acid; clear wavy boundary.

Bt1—19 to 26 inches; yellowish red (5YR 5/6) loam; moderate medium subangular blocky structure; friable; common fine and few medium roots; many medium tubular pores; few faint clay films on all faces of peds; 1 percent rounded quartz gravel; very strongly acid; gradual smooth boundary.

Bt2—26 to 37 inches; yellowish red (5YR 5/6) sandy clay loam; moderate medium subangular blocky structure; friable; common fine roots; few fine tubular pores; many faint clay films on all faces of peds; common medium distinct red (2.5YR 4/6) masses of oxidized iron; 1 percent rounded quartz gravel; very strongly acid; gradual smooth boundary.

Bt3—37 to 50 inches; yellowish red (5YR 5/8) sandy clay loam; weak medium subangular blocky structure; firm, slightly sticky, slightly plastic; few fine roots; few fine tubular pores; many faint clay films on all faces of peds; common medium distinct red (2.5YR 4/6) masses of oxidized iron; 1 percent rounded quartz gravel; very strongly acid; gradual smooth boundary.

Bt4—50 to 70 inches; yellowish red (5YR 5/8) sandy clay loam; weak medium subangular blocky structure; firm, slightly sticky, slightly plastic; many faint clay

films on all faces of peds; few medium prominent pink (7.5YR 7/4) masses of oxidized iron; 1 percent rounded quartz gravel; very strongly acid.

Range in Characteristics

Solum thickness: 60 inches or more
Rock fragments: 0 to 15 percent gravel throughout the profile
Soil reaction: Very strongly acid or strongly acid, except in limed areas

A horizon:
Hue—5YR to 10YR
Value—3 to 5
Chroma—2 to 4
Texture—sandy loam, fine sandy loam, or loam

Ap horizon (where present):
Hue—5YR to 10YR
Value—3 to 5
Chroma—2 to 4
Texture—sandy loam, fine sandy loam, or loam

E horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 6
Texture—sandy loam, fine sandy loam, or loam

BE horizon:
Hue—5YR to 10YR
Value—4 to 6
Chroma—3 to 8
Texture—sandy loam, fine sandy loam, loam, or sandy clay loam

Bt horizon:
Hue—10R to 5YR
Value—4 to 6
Chroma—6 or 8
Texture—loam, sandy clay loam, or clay loam

Bibb Series

Physiographic province: Southern Coastal Plain
Landform: Flood plains
Parent material: Stratified loamy and sandy alluvial sediments
Drainage class: Poorly drained
Slowest saturated hydraulic conductivity: Moderately high
Slope range: 0 to 2 percent

Associated Soils

- Chastain soils, which are on similar landscapes
- Myatt soils, which have a regular increase and decrease in clay content; on low stream terrace treads

Taxonomic Classification

Coarse-loamy, siliceous, active, acid, thermic Typic Fluvaquents

Typical Pedon

Bibb-Chastain complex, 0 to 2 percent slopes, frequently flooded; located in an area of

mixed hardwoods, about 100 yards north of Highway VA-626 along Cohoke Creek; New Kent, Virginia USGS 7.5 Minute Quadrangles, NAD27; lat. 37 degrees 33 minutes 19.00 seconds N. and long. 76 degrees 56 minutes 57.00 seconds W.

A—0 to 4 inches; grayish brown (10YR 5/2) loamy sand; weak fine granular structure; very friable; many fine and medium roots; strongly acid; clear smooth boundary.

Ag—4 to 15 inches; grayish brown (10YR 5/2) loamy sand; single grain; loose; many fine and medium roots; common medium distinct gray (10YR 6/1) iron depletions and common medium prominent yellowish red (5YR 5/6) masses of oxidized iron; strongly acid; clear smooth boundary.

Cg1—15 to 42 inches; gray (10YR 6/1) sandy loam; massive; friable, slightly sticky, slightly plastic; few fine roots; common medium prominent yellowish brown (10YR 5/8) masses of oxidized iron; strongly acid; gradual smooth boundary.

Cg2—42 to 65 inches; gray (5Y 6/1) loamy sand; massive; very friable, slightly sticky, slightly plastic; many medium prominent yellowish brown (10YR 5/6) masses of oxidized iron; strongly acid.

Range in Characteristics

Soil reaction: Extremely acid to strongly acid
Rock fragments: 0 to 3 percent gravel in the A horizons; 0 to 20 percent gravel in the Cg horizons

A horizon:
Hue—7.5YR or 10YR
Value—2 to 5
Chroma—1 to 3
Texture—sand, loamy sand, sandy loam, fine sandy loam, loam, or silt loam

Ag horizon:
Hue—neutral or 10YR or 2.5Y
Value—3 to 7
Chroma—0 to 2
Redoximorphic features—iron masses in shades of brown, yellow, or red
Texture—sand, loamy sand, sandy loam, fine sandy loam, loam, or silt loam

Cg horizon (upper part):
Hue—neutral or 10YR to 5BG
Value—3 to 7
Chroma—0 to 2
Redoximorphic features—iron masses in shades of brown, yellow, or red
Texture (fine-earth fraction)—horizon is sandy loam, fine sandy loam, loam, or silt loam or is stratified

Cg horizon (lower part):
Hue—neutral or 10YR to 5BG
Value—3 to 7
Chroma—0 to 2
Redoximorphic features—iron masses in shades of brown, yellow, or red
Texture (fine-earth fraction)—sand, loamy sand, loamy fine sand, sandy loam, fine sandy loam, loam, or silt loam

Bojac Series

Physiographic province: Southern Coastal Plain
Landform: Marine terraces
Parent material: Loamy and sandy fluviomarine sediments

Drainage class: Well drained
Slowest saturated hydraulic conductivity: High
Slope range: 0 to 6 percent

Associated Soils

- Altavista soils, which are moderately well drained and have more clay in the subsoil
- Roanoke soils, which are poorly drained and have more clay in the subsoil
- State and Wickham soils, which have more clay in the subsoil
- Tarboro soils, which are well drained and have less clay
- Tomotley soils, which are poorly drained

Taxonomic Classification

Coarse-loamy, mixed, semiactive, thermic Typic Hapludults

Typical Pedon

Bojac sandy loam, 0 to 6 percent slopes, very rarely flooded; located in an area of pine woodland, 1 mile east of the end of Highway VA-641 on the private Sandy Point road, 230 yards west of Chesapeake research plots; King And Queen Court House, Virginia USGS 7.5 Minute Quadrangles, NAD27; lat. 37 degrees 40 minutes 36.00 seconds N. and long. 76 degrees 57 minutes 26.00 seconds W.

Ap—0 to 6 inches; light yellowish brown (10YR 6/4) sandy loam; weak fine granular structure; very friable, nonsticky, nonplastic; common fine and medium roots; few fine mica flakes; slightly acid; clear smooth boundary.

E—6 to 12 inches; yellowish brown (10YR 5/6) fine sandy loam; weak fine subangular blocky structure; very friable, nonsticky, nonplastic; common fine and medium roots; few fine mica flakes; slightly acid; gradual smooth boundary.

Bt1—12 to 21 inches; strong brown (7.5YR 5/6) fine sandy loam; weak medium subangular blocky structure; very friable, nonsticky, nonplastic; common fine roots; few faint clay bridges between sand grains; few fine mica flakes; slightly acid; gradual smooth boundary.

Bt2—21 to 40 inches; strong brown (7.5YR 5/6) fine sandy loam; weak medium subangular blocky structure; very friable, slightly sticky, slightly plastic; few fine roots; common distinct clay bridges between sand grains; few fine mica flakes; slightly acid; gradual smooth boundary.

Bt3—40 to 46 inches; reddish yellow (7.5YR 6/8) fine sandy loam; weak coarse subangular blocky structure; very friable, nonsticky, nonplastic; few fine roots; common distinct clay bridges between sand grains; few fine mica flakes; slightly acid; gradual smooth boundary.

C—46 to 65 inches; very pale brown (10YR 7/4) fine sand; single grain; loose; thin strata of yellowish brown (10YR 5/6) fine sandy loam; few fine mica flakes; moderately acid.

Range in Characteristics

Solum thickness: 30 to 65 inches
Rock fragments: 0 to 5 percent gravel in the A, E, BA, BE, Bt, and BC horizons; 0 to 15 percent gravel in the C horizon
Soil reaction: Extremely acid to slightly acid, except in limed areas
Mica flakes: Few or common in most pedons

A horizon (where present):
Hue—7.5YR to 2.5Y
Value—3 to 6; value of 3 occurs only where the horizon is less than 6 inches thick

Chroma—1 to 4; chroma of 1 or 2 occurs only where the horizon is less than 6 inches thick
Texture—loamy sand, sandy loam, or fine sandy loam

Ap horizon:
Hue—7.5YR to 2.5Y
Value—3 to 6; value of 3 occurs only where the horizon is less than 6 inches thick
Chroma—1 to 4; chroma of 1 or 2 occurs only where the horizon is less than 6 inches thick
Texture—loamy sand, sandy loam, or fine sandy loam

E horizon:
Hue—10YR or 2.5Y
Value—4 to 7
Chroma—4 or 6
Texture—loamy sand, sandy loam, fine sandy loam, or loam

BA or BE horizon (where present):
Hue—5YR to 2.5Y
Value—4 to 7
Chroma—3 to 6
Texture—sandy loam, fine sandy loam, or loam

Bt horizon:
Hue—5YR to 10YR
Value—4 to 6
Chroma—4 to 8
Redoximorphic features—iron masses in shades of brown, yellow, or red; iron depletions in shades of olive or gray
Texture—sandy loam, fine sandy loam, or loam; thin subhorizons of sandy clay loam or clay loam are in some pedons

BC horizon (where present):
Hue—5YR to 10YR
Value—4 to 6
Chroma—4 to 8
Redoximorphic features—iron masses in shades of brown, yellow, or red; iron depletions in shades of olive or gray
Texture—loamy sand or loamy fine sand

C horizon:
Hue—7.5YR to 2.5Y
Value—4 to 7
Chroma—3 to 8
Redoximorphic features—iron masses in shades of brown, yellow, or red; iron depletions in shades of olive or gray
Texture (fine-earth fraction)—commonly stratified; ranging from coarse sand to loamy fine sand

Cecil Series

Physiographic province: Southern Piedmont
Landform: Piedmont uplands
Parent material: Clayey residuum weathered from granite and gneiss
Drainage class: Well drained
Slowest saturated hydraulic conductivity: Moderately high
Slope range: 2 to 7 percent

Associated Soils

- Appling soils, which are less red
- Rion soils, which have less clay
- Wateree soils, which have less clay

Taxonomic Classification

Fine, kaolinitic, thermic Typic Kanhapludults

Typical Pedon

Cecil sandy loam, 2 to 7 percent slopes; located west of Highway VA-665, about 1.25 miles west of the junction of Highways VA-665 and VA-603; Clayville, Virginia USGS 7.5 Minute Quadrangles, NAD27; lat. 37 degrees 24 minutes 4.00 seconds N. and long. 77 degrees 49 minutes 42.00 seconds W.

A—0 to 1 inch; dark grayish brown (10YR 4/2) sandy loam; weak fine granular structure; very friable; many fine and medium roots; very strongly acid; abrupt smooth boundary.

E—1 to 9 inches; yellowish brown (10YR 5/4) sandy loam; weak fine granular structure; very friable; many fine and medium roots; common fine and medium pores; 4 percent angular quartzite gravel; very strongly acid; clear smooth boundary.

BEt—9 to 14 inches; yellowish red (5YR 4/6) sandy clay loam; moderate fine subangular blocky structure; friable, slightly sticky, slightly plastic; many fine and medium roots; few fine pores; 4 percent angular quartzite gravel; very strongly acid; clear smooth boundary.

Bt1—14 to 26 inches; red (2.5YR 4/6) clay; few fine distinct yellowish brown (10YR 5/8) mottles; moderate medium subangular blocky structure; firm, moderately sticky, moderately plastic; few fine and medium roots; few fine and medium pores; few clay films; very strongly acid; gradual smooth boundary.

Bt2—26 to 39 inches; red (2.5YR 4/6) clay; few fine distinct dark yellowish brown (10YR 4/6) mottles; moderate medium subangular blocky and angular blocky structure; firm, moderately sticky, moderately plastic; few medium roots; few clay films; very strongly acid; gradual smooth boundary.

BCt—39 to 63 inches; red (2.5YR 5/6) clay; few fine distinct yellowish brown (10YR 5/6) and yellowish red (5YR 4/6) mottles; weak medium and coarse angular blocky structure; friable, slightly sticky, slightly plastic; few fine and medium roots; few fine pores; few clay films; few fine mica flakes; 10 percent angular quartzite gravel; very strongly acid; gradual smooth boundary.

C—63 to 83 inches; red (2.5YR 4/6) and strong brown (7.5YR 5/8) loam; massive; friable, slightly sticky, slightly plastic; few fine mica flakes; 10 percent angular quartzite gravel; very strongly acid.

Range in Characteristics

Solum thickness: 40 to 60 inches or more
Depth to bedrock: More than 5 feet
Rock fragments: 0 to 15 percent angular quartz gravel throughout the profile

A horizon:
Hue—10YR or 7.5YR
Value—4 or 5
Chroma—2 to 6
Texture—fine sandy loam or sandy loam

E horizon:
Hue—10YR or 7.5YR

Value—4 to 6
Chroma—3 to 8
Texture—fine sandy loam or sandy loam

BE horizon:
Hue—10YR or 5YR
Value—4 to 6
Chroma—3 to 8
Texture—fine sandy loam, clay loam, or sandy loam

Bt horizon:
Hue—5YR or 2.5YR
Value—4 or 5
Chroma—6 to 8
Texture—clay loam or clay

BC horizon:
Hue—10R to 5YR
Value—4 to 6
Chroma—4 to 8
Texture—loam, sandy loam, sandy clay loam, or clay loam

C horizon:
Hue—10R to 5YR
Value—4 to 6
Chroma—4 to 8
Texture—loam, sandy loam, or clay loam

Chastain Series

Physiographic province: Southern Coastal Plain
Landform: Coastal Plain flood plains
Parent material: Clayey and loamy alluvium
Drainage class: Poorly drained
Slowest saturated hydraulic conductivity: Moderately low
Slope range: 0 to 2 percent

Associated Soils

- Chewacla soils, which are somewhat poorly drained
- Riverview soils, which are well drained

Taxonomic Classification

Fine, mixed, semiactive, acid, thermic Typic Fluvaquents

Typical Pedon

Chastain silt loam, 0 to 2 percent slopes, ponded; located 0.33 mile northwest of Powhite Parkway bridge, 400 yards south of the James River; Bon Air, Virginia USGS 7.5 Minute Quadrangles, NAD27; lat. 37 degrees 32 minutes 22.00 seconds N. and long. 77 degrees 30 minutes 9.00 seconds W.

A1—0 to 2 inches; dark grayish brown (10YR 4/2) silt loam; moderate fine granular structure; very friable; many fine roots; strongly acid; clear smooth boundary.

A2—2 to 13 inches; dark gray (10YR 4/1) silt loam; moderate fine granular structure; friable, slightly sticky, slightly plastic; few fine and medium roots; many fine pores; common medium prominent reddish brown (5YR 5/4) and brown (7.5YR 5/4) masses of oxidized iron; strongly acid; clear wavy boundary.

Bg1—13 to 24 inches; dark gray (10YR 4/1) clay loam; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; many fine pores; few fine prominent reddish brown (2.5YR 4/4) masses of oxidized iron; very strongly acid; gradual smooth boundary.

Bg2—24 to 36 inches; dark gray (N 4/0) clay loam; weak coarse subangular blocky structure; firm, moderately sticky, slightly plastic; few fine roots; many fine pores; few fine prominent reddish brown (2.5YR 4/4) and common medium prominent strong brown (7.5YR 5/8) masses of oxidized iron; very strongly acid; gradual smooth boundary.

Cg—36 to 80 inches; dark gray (N 4/0) sand; massive; firm, moderately sticky, slightly plastic; common medium prominent strong brown (7.5YR 5/8) masses of oxidized iron; very strongly acid.

Range in Characteristics

Solum thickness: 36 to 60 inches or more
Depth to bedrock: More than 5 feet
Rock fragments: 0 to 10 percent rounded quartz gravel in the C horizon

A horizon:
Hue—5Y to 7.5YR
Value—2 to 6 or neutral
Chroma—1 to 6
Texture—loam or silt loam

Bg horizon:
Hue—10YR to 5GY
Value—4 or 5 or neutral
Chroma—0 to 2
Redoximorphic features—iron masses in shades of brown, yellow, or red
Texture—clay loam, silty clay loam, or silty clay

Cg horizon:
Hue—10YR to 5GY
Value—4 to 7 or neutral
Chroma—0 to 2
Redoximorphic features—iron masses in shades of brown, yellow, or red
Texture—sand, loamy sand, or fine sand

Chewacla Series

Physiographic province: Southern Piedmont
Landform: Piedmont flood plains
Parent material: Loamy alluvium
Drainage class: Somewhat poorly drained
Slowest saturated hydraulic conductivity: Moderately high
Slope range: 0 to 2 percent

Associated Soils

- Chastain and Bibb soils, which are poorly drained
- Riverview soils, which are well drained
- State soils, which are in slightly higher landscape positions

Taxonomic Classification

Fine-loamy, mixed, active, thermic Fluvaquentic Dystrudepts

Typical Pedon

Chewacla silt loam, 0 to 2 percent slopes, occasionally flooded; located 1 mile northwest of Powhite Parkway bridge, about 600 feet south of the James River; Bon Air, Virginia USGS 7.5 Minute Quadrangles, NAD27; lat. 37 degrees 32 minutes 26.00 seconds N. and long. 77 degrees 30 minutes 15.00 seconds W.

A—0 to 5 inches; dark brown (7.5YR 3/2) silt loam; weak fine granular structure; very friable; many fine and medium roots; strongly acid; abrupt smooth boundary.

BA—5 to 13 inches; brown (10YR 5/3) clay loam; weak fine subangular blocky and weak fine granular structure; friable; few fine roots; common fine pores; few fine mica flakes; strongly acid; clear smooth boundary.

Bw—13 to 26 inches; brown (10YR 4/3), pale brown (10YR 6/3), and light brownish gray (10YR 6/2) clay loam; weak fine subangular blocky structure; friable, slightly sticky, slightly plastic; few fine roots; few fine pores; few mica flakes; strongly acid; clear smooth boundary.

Bg—26 to 40 inches; brown (7.5YR 4/4), light brownish gray (10YR 6/2), and weak red (2.5YR 5/2) clay loam; weak coarse subangular blocky structure; friable, slightly sticky, slightly plastic; few fine roots; common fine pores; few mica flakes; strongly acid; gradual wavy boundary.

Cg—40 to 60 inches; yellowish brown (10YR 5/6), light brownish gray (10YR 6/2), and black (N 2/0) silty clay loam; massive; friable, slightly sticky, slightly plastic; few mica flakes; strongly acid.

Range in Characteristics

Solum thickness: 40 to 60 inches or more
Depth to bedrock: More than 5 feet
Rock fragment content: Less than 5 percent, by volume, in the A and upper B horizons; in some pedons, gravel content ranges to 15 percent, by volume, in the lower B horizons

A horizon:
Hue—10YR or 2.5Y
Value—3 to 5
Chroma—1 to 6
Texture—loam, sandy loam, fine sandy loam, or silt loam

BA horizon:
Hue—10YR or 2.5Y
Value—3 to 5
Chroma—1 to 6
Texture—loam, sandy loam, fine sandy loam, clay loam, or silt

Bw horizon:
Hue—5YR to 2.5Y
Value—4 to 7
Chroma—3 to 8
Texture—silt loam, silty clay loam, or clay loam

Bg horizon:
Hue—10YR or 2.5Y
Value—4 to 7 or neutral
Chroma—0 to 2
Texture—loam, sandy clay loam, or clay loam

Cg horizon:
Hue—10YR or 2.5Y
Value—4 to 7 or neutral

Chroma—0 to 2
Texture—sand to clay

Emporia Series

Physiographic province: Coastal Plain
Landform: Marine terraces
Parent material: Loamy marine sediments
Drainage class: Well drained
Slowest saturated hydraulic conductivity: Moderately low
Slope range: 0 to 50 percent

Associated Soils

- Nevarc soils, which are moderately well drained and have more clay in the subsoil
- Rumford soils, which have less clay in the subsoil
- Slagle soils, which are moderately well drained
- Suffolk soils, which have coarse substrata within a depth of 50 inches

Taxonomic Classification

Fine-loamy, siliceous, subactive, thermic Typic Hapludults

Typical Pedon

Kempsville-Emporia complex, 0 to 2 percent slopes; located near Clancie, 1.1 miles southwest on Highway VA-647 from its junction with Highway VA-609, about 1,000 feet south on Chesapeake Corporation road, 100 feet west of the road, in woodland; Shacklefords, Virginia USGS 7.5 Minute Quadrangles, NAD27; lat. 37 degrees 34 minutes 33.00 seconds N. and long. 76 degrees 42 minutes 56.00 seconds W.

A—0 to 6 inches; grayish brown (2.5Y 5/2) sandy loam; weak fine granular structure; friable, nonsticky, nonplastic; many very fine and fine and few medium roots; many fine vesicular pores; moderately acid; clear wavy boundary.
E—6 to 12 inches; light yellowish brown (2.5Y 6/4) sandy loam; moderate medium subangular blocky structure; friable, slightly sticky, slightly plastic; few fine and medium roots; few fine vesicular pores; moderately acid; clear smooth boundary.
Bt1—12 to 22 inches; yellowish brown (10YR 5/6) loam; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; few very fine and fine roots; few fine vesicular pores; few faint patchy clay films on all faces of peds; many medium and coarse distinct light yellowish brown (10YR 6/4) masses of oxidized iron; strongly acid; clear smooth boundary.
Bt2—22 to 36 inches; yellowish brown (10YR 5/6) loam; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; few very fine and fine roots; few fine vesicular pores; common distinct clay films on all faces of peds; common medium distinct strong brown (7.5YR 5/6) and many medium distinct very pale brown (10YR 7/4) masses of oxidized iron; strongly acid; clear smooth boundary.
Bt3—36 to 42 inches; yellowish brown (10YR 5/6) loam; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; few very fine and fine roots; few fine vesicular pores; common distinct clay films on all faces of peds; few fine and medium distinct very pale brown (10YR 7/4) masses of oxidized iron; very strongly acid; clear smooth boundary.
BC—42 to 62 inches; brownish yellow (10YR 6/8), strong brown (7.5YR 5/6), pinkish gray (7.5YR 7/2), and red (2.5YR 5/6) sandy clay loam; weak coarse subangular blocky structure; friable, slightly hard, slightly sticky, slightly plastic; very strongly acid.

Range in Characteristics

Solum thickness: 40 to 75 inches
Rock fragments: 0 to 20 percent gravel in the A, E, and B horizons; 0 to 35 percent gravel in the C horizons
Reaction: Very strongly acid to moderately acid, except in limed areas

A horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—2 to 4
Texture (fine-earth fraction)—loamy sand, loamy fine sand, sandy loam, fine sandy loam, or loam

E horizon:
Hue—10YR or 2.5Y
Value—5 or 6
Chroma—3 to 6
Texture (fine-earth fraction)—loamy sand, loamy fine sand, sandy loam, fine sandy loam, or loam

BE horizon (where present):
Hue—7.5YR or 10YR
Value—5 to 7
Chroma—4 to 6
Texture (fine-earth fraction)—sandy loam, fine sandy loam, or loam

Bt horizon (upper part):
Hue—5YR to 10YR
Value—4 to 6
Chroma—3 to 8
Redoximorphic features—iron masses in shades of brown, yellow, or red
Texture (fine-earth fraction)—sandy loam, fine sandy loam, loam, sandy clay loam, or clay loam

Bt horizon (lower part):
Hue—5YR to 2.5Y
Value—4 to 6
Chroma—3 to 8
Redoximorphic features—iron masses in shades of brown, yellow, or red; iron depletions in shades of gray below a depth of 36 inches
Texture—sandy loam, fine sandy loam, loam, sandy clay loam, or clay loam; sandy clay or clay in some pedons

BC horizon:
Hue—2.5YR to 2.5Y
Value—4 to 6
Chroma—3 to 8
Redoximorphic features—iron masses in shades of brown, yellow, or red; iron depletions in shades of gray
Texture (fine-earth fraction)—sandy loam, fine sandy loam, loam, sandy clay loam, or clay loam; sandy clay or clay in some pedons

C horizon (where present):
Hue—2.5YR to 5Y
Value—3 to 8
Chroma—3 to 8

Redoximorphic features—iron masses in shades of brown, yellow, or red; iron depletions in shades of gray
Texture (fine-earth fraction)—sandy loam to clay

Helena Series

Physiographic province: Southern Piedmont
Landform: Uplands
Parent material: Gneiss residuum
Drainage class: Moderately well drained
Slowest saturated hydraulic conductivity: Moderately low
Slope range: 2 to 15 percent

Associated Soils

- Altavista soils, which are moderately well drained
- Appling soils, which are well drained
- Cecil soils, which are well drained

Taxonomic Classification

Fine, mixed, semiactive, thermic Aquic Hapludults

Typical Pedon

Helena-Appling complex, 2 to 15 percent slopes; located approximately 1 mile east-northeast of Dundas, Virginia; Kenbridge East, Virginia USGS 7.5 Minute Quadrangles, NAD83; lat. 36 degrees 55 minutes 5.17 seconds N. and long. 78 degrees 0 minutes 16.00 seconds W.

Ap—0 to 8 inches; yellowish brown (10YR 5/4) sandy loam; weak medium granular structure; very friable, slightly sticky, nonplastic; many very fine, fine, and medium and few coarse roots; moderately acid; abrupt smooth boundary.
Bt1—8 to 15 inches; yellowish brown (10YR 5/8) sandy clay loam; weak fine subangular blocky structure; firm, slightly sticky, slightly plastic; many very fine and fine, many medium, and few coarse roots; strongly acid; clear wavy boundary.
Bt2—15 to 30 inches; yellowish brown (10YR 5/8) sandy clay; moderate medium subangular blocky structure; firm, moderately sticky, moderately plastic; many very fine and fine, many medium, and few coarse roots; common fine prominent red (2.5YR 5/6) masses of oxidized iron; very strongly acid; clear wavy boundary.
Bt3—30 to 40 inches; yellowish brown (10YR 5/8) sandy clay; moderate medium subangular blocky structure; firm, slightly sticky, very plastic; few very fine and fine and few medium roots; many fine prominent light gray (10YR 7/2) iron depletions; very strongly acid; clear wavy boundary.
BC—40 to 50 inches; brownish yellow (10YR 6/6) and strong brown (7.5YR 5/6) clay loam; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; few very fine and fine and few medium roots; many medium prominent light gray (10YR 7/2) iron depletions; very strongly acid; clear wavy boundary.
C—50 to 60 inches; yellowish brown (10YR 5/8 and 5/6) sandy clay loam; massive; friable, slightly sticky, slightly plastic; many medium distinct light gray (10YR 7/2) iron depletions; very strongly acid.

Range in Characteristics

Depth to bedrock: Greater than 60 inches
Depth to seasonal high water table: 18 to 30 inches
Rock fragment content: 0 to 15 percent, by volume, throughout the profile
Mica content: 0 to 20 percent, by volume

Soil reaction: Extremely acid to strongly acid throughout the profile, except in limed areas

A or Ap horizon:
Hue—10YR or 2.5Y
Value—3 to 6
Chroma—1 to 4
Texture—sandy loam

E horizon (where present):
Hue—10YR to 5Y
Value—5 to 8
Chroma—2 to 4
Texture—coarse sandy loam, fine sandy loam, sandy loam, or loam

BE or BA horizon (where present):
Hue—7.5YR to 5Y
Value—5 to 8
Chroma—3 to 8
Texture—sandy clay loam or clay loam

Bt horizon:
Hue—7.5YR to 2.5Y
Value—5 to 8
Chroma—3 to 8
Redoximorphic features—masses of oxidized iron in shades of red, yellow, or brown and iron depletions in shades of brown, yellow, or gray occur within 24 inches of the upper boundary of the Bt horizon
Texture—sandy clay, clay, clay loam, or sandy clay loam

Btg horizon (where present):
Hue—10YR or 2.5Y
Value—4 to 7
Chroma—1 or 2
Redoximorphic features—masses of oxidized iron in shades of red, yellow, or brown; iron depletions in shades of brown, yellow, or gray
Texture—sandy clay, clay, or clay loam

BC or BCt horizon:
Hue—10YR or 2.5Y
Value—5 to 8
Chroma—3 to 8
Redoximorphic features (where present)—masses of oxidized iron in shades of red, yellow, or brown; iron depletions in shades of brown, yellow, or gray
Texture—loam, sandy clay loam, clay loam, fine sandy loam, or sandy loam

BCg or BCtg horizon (where present):
Hue—10YR or 2.5Y
Value—4 to 7
Chroma—1 or 2
Redoximorphic features—masses of oxidized iron in shades of red, yellow, or brown; iron depletions in shades of brown, yellow, or gray
Texture—loam, sandy clay loam, clay loam, fine sandy loam, or sandy loam

C horizon:
Hue—5YR to 5Y
Value—5 to 8
Chroma—3 to 8

Redoximorphic features (where present)—masses of oxidized iron in shades of red, yellow, or brown; iron depletions in shades of brown, yellow, or gray
Texture—sandy clay loam, clay loam, or loam

Cg horizon (where present):
Hue—10YR or 2.5Y
Value—4 to 7
Chroma—1 or 2
Redoximorphic features—masses of oxidized iron in shades of red, yellow, or brown; iron depletions in shades of brown, yellow, or gray
Texture—sandy loam, sandy clay loam, clay loam, fine sandy loam, loamy sand, or loam saprolite

Kempsville Series

Physiographic province: Coastal Plain
Landform: Uplands
Parent material: Marine deposits
Drainage class: Well drained
Slowest saturated hydraulic conductivity: Moderately high
Slope range: 0 to 50 percent

Associated Soils

- Emporia soils, which have a seasonal water table below a depth of 40 inches
- Slagle soils, which are moderately well drained
- Suffolk soils, which have coarse substrata within a depth of 50 inches

Taxonomic Classification

Fine-loamy, siliceous, subactive, thermic Typic Hapludults

Typical Pedon

Kempsville-Emporia complex, 2 to 6 percent slopes; located at the end of Route 646 about 2 miles north of the Appomattox River and 1 mile south of the junction of Routes 646 and 602; Mannboro, Virginia USGS 7.5 Minute Quadrangles, NAD27; lat. 37 degrees 18 minutes 18.00 seconds N. and long. 77 degrees 45 minutes 28.00 seconds W.

A—0 to 3 inches; dark grayish brown (10YR 4/2) sandy loam; weak fine granular structure; very friable; many fine and medium roots; very strongly acid; abrupt smooth boundary.
E—3 to 19 inches; light reddish brown (2.5YR 6/4) sandy loam; weak fine granular structure; friable; many fine and medium roots; few vesicular pores; very strongly acid; gradual smooth boundary.
BEt—19 to 23 inches; yellowish brown (10YR 5/6) sandy clay loam; weak fine subangular blocky structure; friable, slightly sticky, slightly plastic; many medium roots; very strongly acid; gradual smooth boundary.
Bt1—23 to 29 inches; yellowish brown (10YR 5/6) sandy clay loam; weak fine and medium subangular blocky structure; friable, slightly sticky, slightly plastic; many fine to coarse roots; common clay bridges; very strongly acid; gradual smooth boundary.
Bt2—29 to 37 inches; yellowish brown (10YR 5/8) sandy clay loam; common medium distinct pale brown (10YR 6/3) and strong brown (7.5YR 5/8) mottles; weak fine subangular blocky structure; many vesicular pores; very strongly acid; gradual smooth boundary.
BCt—37 to 65 inches; yellowish brown (10YR 5/8) sandy clay; common medium

distinct pale brown (10YR 6/3) and strong brown (7.5YR 5/6) mottles; weak coarse subangular blocky structure; firm, moderately sticky, slightly plastic; very strongly acid; gradual smooth boundary.

C1—65 to 150 inches; red (2.5YR 5/6), gray (10YR 6/1), and yellowish brown (10YR 5/6) sandy clay loam; massive; common plinthite nodules; very strongly acid; gradual smooth boundary.

C2—150 to 234 inches; red (2.5YR 5/6) sand; massive; very strongly acid.

Range in Characteristics

Solum thickness: 42 to 60 inches or more
Depth to bedrock: More than 5 feet
Rock fragments: 0 to 15 percent rounded quartz gravel in the C horizon

A horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—2 to 4
Texture—loamy sand, sandy loam, or fine sandy loam

E horizon:
Hue—10YR or 2.5Y
Value—5 to 7
Chroma—3 to 6
Texture—sandy loam

BEt horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—4 to 8
Texture—fine sandy loam, sandy clay loam, or clay loam

Bt horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—6 to 8
Texture—fine sandy loam, sandy clay loam, or clay loam

BC horizon:
Hue—5YR to 10YR
Value—4 to 6
Chroma—4 to 8
Texture—sandy clay loam or sandy clay

C horizon:
Hue—5YR to 10YR
Value—4 to 7
Chroma—3 to 8
Texture (fine-earth fraction)—sand to sandy clay loam

Myatt Series

Physiographic province: Southern Coastal Plain
Landform: Marine and stream terraces
Parent material: Loamy and sandy alluvial or marine sediments
Drainage class: Poorly drained
Slowest saturated hydraulic conductivity: Moderately high
Slope range: 0 to 2 percent

Associated Soils

- Emporia, Kempsville, Rumford, and Suffolk soils, which are well drained
- Slagle soils, which are moderately well drained

Taxonomic Classification

Fine-loamy, siliceous, active, thermic Typic Endoaquults

Typical Pedon

Myatt-Slagle complex, 0 to 2 percent slopes; located in an area of mixed hardwoods, 0.28 mile north of the junction of Highways US-360 and VA-648, about 30 yards east of Highway VA-648; Manquin, Virginia USGS 7.5 Minute Quadrangles, NAD27; lat. 37 degrees 42 minutes 54.00 seconds N. and long. 77 degrees 09 minutes 41.00 seconds W.

A—0 to 7 inches; very dark grayish brown (10YR 3/2) loam; moderate medium granular structure; very friable, slightly sticky, slightly plastic; many fine and medium and common coarse roots; common fine and medium tubular pores; few fine mica flakes; very strongly acid; clear smooth boundary.

Eg—7 to 15 inches; dark grayish brown (10YR 4/2) fine sandy loam; moderate fine and medium granular structure; very friable, slightly sticky, nonplastic; common fine and medium and few coarse roots; common fine and medium tubular and few coarse tubular pores; few fine mica flakes; very strongly acid; gradual smooth boundary.

Btg1—15 to 31 inches; dark gray (10YR 4/1) sandy clay loam; weak coarse subangular blocky structure; friable, moderately sticky, moderately plastic; common fine and few medium roots; common fine and medium tubular pores; common distinct clay films on all faces of peds and many distinct clay bridges between sand grains; common fine prominent yellowish brown (10YR 5/6) and common fine distinct dark yellowish brown (10YR 4/4) masses of oxidized iron; few fine mica flakes; strongly acid; clear smooth boundary.

Btg2—31 to 40 inches; dark gray (10YR 4/1) sandy clay loam; moderate medium subangular blocky structure; friable, moderately sticky, moderately plastic; common fine and medium roots; common fine and medium tubular pores; common distinct clay films on all faces of peds and many distinct clay bridges between sand grains; common medium faint gray (10YR 6/1) iron depletions; few fine mica flakes; strongly acid; gradual wavy boundary.

Cg—40 to 65 inches; gray (10YR 5/1) coarse sand; single grain; loose; few fine black mineral grains and weathered feldspar crystals; few fine mica flakes; 5 percent rounded quartz gravel; strongly acid.

Range in Characteristics

Solum thickness: 40 to 60 inches

Soil reaction: Very strongly acid to moderately acid in the A, Eg, and upper Btg horizon, except in limed areas; extremely acid to strongly acid in the lower Btg horizon and in the Cg horizon

Rock fragments: 0 to 3 percent in the A, E, and Btg horizons; 5 to 25 percent in the Cg horizon

A horizon:

Hue—10YR or 2.5Y
Value—3 to 6
Chroma—1 or 2
Texture—loamy sand, loamy fine sand, sandy loam, fine sandy loam, or loam

Ap horizon (where present):
Hue—10YR or 2.5Y
Value—3 to 6
Chroma—1 or 2
Texture—loamy sand, loamy fine sand, sandy loam, fine sandy loam, or loam

Eg horizon:
Hue—10YR or 2.5Y
Value—4 to 7
Chroma—1 or 2
Texture—loamy sand, loamy fine sand, sandy loam, fine sandy loam, or loam

Btg horizon:
Hue—neutral or 10YR to 5Y
Value—3 to 7
Chroma—0 to 2
Redoximorphic features—iron masses in shades of red, brown, or yellow; iron depletions in shades of gray
Texture—fine sandy loam, loam, sandy clay loam, or clay loam

Cg horizon:
Hue—neutral or 10YR to 5Y
Value—5 to 7
Chroma—0 to 2
Redoximorphic features—iron masses in shades of red, brown, or yellow; iron depletions in shades of gray
Texture (fine-earth fraction)—sand, coarse sand, sandy loam, fine sandy loam, sandy clay loam, or clay loam

Nevarc Series

Physiographic province: Southern Coastal Plain
Landform: Marine terraces
Parent material: Clayey marine sediments
Drainage class: Moderately well drained
Slowest saturated hydraulic conductivity: Moderately low
Slope range: 15 to 50 percent

Associated Soils

- Bibb soils, which are poorly drained and subject to flooding
- Emporia and Suffolk soils, which are well drained and have less clay in the subsoil
- Remlik soils, which are well drained and have thick, sandy surface layers

Taxonomic Classification

Fine, mixed, subactive, thermic Aquic Hapludults

Typical Pedon

Nevarc sandy loam, 15 to 50 percent slopes; located in an area of mixed hardwoods, 0.23 mile east of a gate along a private road to Sandy Point Campground, 100 yards north of the road; King And Queen Court House, Virginia USGS 7.5 Minute Quadrangles, NAD27; lat. 37 degrees 40 minutes 14.00 seconds N. and long. 76 degrees 57 minutes 1.00 seconds W.

A—0 to 6 inches; grayish brown (10YR 5/2) sandy loam; weak fine granular structure; friable, slightly sticky, slightly plastic; many fine and medium roots; extremely acid; clear smooth boundary.

Bt1—6 to 22 inches; pale brown (10YR 6/3) clay loam; weak fine subangular blocky structure; friable, moderately sticky, moderately plastic; many fine and medium roots; common faint patchy clay films on all faces of peds; common medium distinct yellowish brown (10YR 5/6) masses of oxidized iron; very strongly acid; clear smooth boundary.

Bt2—22 to 40 inches; yellowish brown (10YR 5/6) clay; moderate medium subangular blocky structure; firm, moderately sticky, moderately plastic; many fine and medium roots; many faint patchy clay films on all faces of peds; common medium distinct strong brown (7.5YR 5/6) masses of oxidized iron and common medium prominent light gray (10YR 7/1) iron depletions; extremely acid; gradual smooth boundary.

Cg—40 to 60 inches; pinkish gray (7.5YR 7/2) clay; massive; firm, moderately sticky, moderately plastic; pockets of sandy clay; common medium distinct strong brown (7.5YR 5/6) and red (2.5YR 4/6) masses of oxidized iron; very strongly acid.

Range in Characteristics

Soil reaction: Extremely acid to moderately acid, except in limed areas
Rock fragments: 0 to 15 percent gravel in the A, E, Bt, and BC horizons; 0 to 35 percent in the C horizon

A horizon:
Hue—7.5YR to 2.5Y
Value—2 to 6
Chroma—2 to 4
Texture—sandy loam, fine sandy loam, loam, or silt loam

E horizon (where present):
Hue—10YR or 2.5Y
Value—5 to 7
Chroma—3 to 8
Texture—sandy loam, fine sandy loam, loam, or silt loam

BA or BE horizon (where present):
Hue—7.5YR or 10YR
Value—4 to 7
Chroma—3 to 8
Texture—loam or clay loam

Bt horizon (upper part):
Hue—7.5YR or 10YR
Value—4 to 7
Chroma—3 to 8
Redoximorphic features—iron masses in shades of brown, yellow, or red
Texture—sandy clay loam, clay loam, silty clay loam, sandy clay, clay, or silty clay

Bt horizon (lower part):
Hue—5YR to 2.5Y
Value—4 to 7
Chroma—3 to 8
Redoximorphic features—iron masses in shades of brown, yellow, or red; iron depletions in shades of olive or gray
Texture—sandy clay loam, clay loam, silty clay loam, sandy clay, clay, or silty clay

BC or BCg horizon (where present):
Hue—5YR to 2.5Y
Value—4 to 7
Chroma—1 to 8

Redoximorphic features—iron masses in shades of brown, yellow, or red; iron depletions in shades of olive or gray
Texture—sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay, or clay

C or Cg horizon:
Hue—5YR to 2.5Y
Value—4 to 7
Chroma—1 to 8
Redoximorphic features—in shades of brown, yellow, red, olive, or gray
Texture—variable; commonly stratified and ranging from sand to clay

Rappahannock Series

Physiographic province: Coastal Plain
Landform: Tidal marshes
Parent material: Organic material over alluvial sediments
Drainage class: Very poorly drained
Slowest saturated hydraulic conductivity: Moderately high
Slope range: 0 to 1 percent

Associated Soils

- Bibb, Tomotley, and Roanoke soils, which are poorly drained and do not have a thick organic surface horizon

Taxonomic Classification

Loamy, mixed, euic, thermic Terric Sulfisaprists

Typical Pedon

Rappahannock muck, 0 to 1 percent slopes, frequently flooded; located about 0.4 mile south of the junction of Highways VA-666 and VA-667 on Highway VA-667, about 100 feet west of Highway VA-667, in a tidal marsh; King And Queen Court House, Virginia USGS 7.5 Minute Quadrangles, NAD27; lat. 37 degrees 28 minutes 22.00 seconds N. and long. 76 degrees 43 minutes 14.00 seconds W.

Oe—0 to 12 inches; very dark grayish brown (10YR 3/2) muck; 20 percent rubbed fiber; massive; nonsticky; very fluid; many fine and medium roots; flows easily between fingers when squeezed; moderate sulfur odor; slightly alkaline; gradual wavy boundary.
Oa1—12 to 29 inches; very dark grayish brown (10YR 3/2) highly decomposed plant material; 10 percent rubbed fiber; massive; nonsticky; many fine roots; slightly alkaline; gradual wavy boundary.
Oa2—29 to 39 inches; very dark gray (10YR 3/1) highly decomposed plant material; 5 percent rubbed fiber; massive; slightly sticky; many fine roots; moderately alkaline; gradual wavy boundary.
Cg—39 to 62 inches; very dark gray (10YR 3/1) sandy loam; 5 percent unrubbed fiber; massive; moderately sticky, slightly plastic; moderately fluid; few fine roots; flows easily between fingers when squeezed; strong sulfur odor; moderately alkaline.

Range in Characteristics

Reaction: Strongly acid to moderately alkaline

O horizon:
Hue—neutral or 10YR to 5Y
Value—2 or 3

Chroma—0 to 2
Texture—muck

Cg horizon:
Hue—neutral or 10YR to 5GY
Value—2 to 5
Chroma—0 to 2
Texture—loamy sand or sandy loam

Remlik Series

Physiographic province: Southern Coastal Plain
Landform: Marine terraces
Parent material: Loamy and sandy marine sediments
Drainage class: Well drained
Slowest saturated hydraulic conductivity: Moderately high
Slope range: 2 to 50 percent

Associated Soils

- Bibb soils, which are poorly drained and subject to flooding
- Suffolk soils, which have a loamy surface layer

Taxonomic Classification

Loamy, siliceous, subactive, thermic Arenic Hapludults

Typical Pedon

Remlik loamy sand, 6 to 15 percent slopes; located in an area of mixed hardwoods, 130 yards north of the junction of Highways VA-30 and VA-629; King William, Virginia USGS 7.5 Minute Quadrangles, NAD27; lat. 37 degrees 41 minutes 45.00 seconds N. and long. 77 degrees 2 minutes 0.00 seconds W.

A—0 to 4 inches; brown (10YR 5/3) loamy sand; massive parting to single grain; very friable, nonsticky, nonplastic; common fine and few medium roots; strongly acid; abrupt smooth boundary.
E—4 to 22 inches; light yellowish brown (10YR 6/4) loamy sand; weak fine granular structure; very friable, nonsticky, nonplastic; common fine and medium roots; strongly acid; clear wavy boundary.
Bt—22 to 38 inches; strong brown (7.5YR 5/6) sandy clay loam; moderate medium subangular blocky structure; friable, slightly sticky, slightly plastic; few fine and medium roots; common faint clay bridges between sand grains; strongly acid; gradual smooth boundary.
BC—38 to 70 inches; strong brown (7.5YR 5/6) sandy loam; weak fine subangular blocky structure; friable, slightly sticky, slightly plastic; few fine roots; few faint clay bridges between sand grains; strongly acid.

Range in Characteristics

Solum thickness: 30 to 60 inches or more
Soil reaction: Extremely acid to moderately acid, except in limed areas
Rock fragments: 0 to 35 percent gravel throughout the profile

A horizon:
Hue—10YR or 2.5Y
Value—2 to 5
Chroma—2 to 4
Texture (fine-earth fraction)—sand, fine sand, loamy sand, or loamy fine sand

E horizon:
Hue—7.5YR or 10YR
Value—5 to 7
Chroma—3 to 8
Texture (fine-earth fraction)—sand, fine sand, loamy sand, or loamy fine sand

EB horizon (where present):
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 8
Texture (fine-earth fraction)—loamy sand or loamy fine sand

Bt horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 8
Texture (fine-earth fraction)—sandy loam, fine sandy loam, or sandy clay loam

BC horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—4 to 8
Texture (fine-earth fraction)—loamy sand, loamy fine sand, sandy loam, or fine sandy loam

C horizon (where present):
Hue—7.5YR or 10YR
Value—5 to 7
Chroma—2 to 8
Texture (fine-earth fraction)—sand, loamy sand, or loamy fine sand

Rion Series

Physiographic province: Southern Piedmont, thermic
Landform: Shoulders of hillslope on piedmont
Parent material: Granite gneiss residuum
Drainage class: Well drained
Slowest saturated hydraulic conductivity: Moderately high
Slope range: 15 to 25 percent

Associated Soils

- Appling soils, which have yellowish brown clayey subsoils
- Cecil soils, which have red clayey subsoils
- Wateree soils, which have soft bedrock between a depth of 20 and 40 inches

Taxonomic Classification

Fine-loamy, mixed, semiactive, thermic Typic Hapludults

Typical Pedon

Rion sandy loam, 15 to 25 percent slopes; located 0.3 mile northeast of the intersection of Routes 683 and 674 on the side slope; Powellton, Virginia USGS 7.5 Minute Quadrangles, NAD83; lat. 36 degrees 42 minutes 27.00 seconds N. and long. 77 degrees 46 minutes 21.50 seconds W.

A—0 to 4 inches; brown (10YR 4/3) sandy loam; weak fine granular structure; friable,

nonsticky, nonplastic; many very fine, fine, and medium and few coarse roots; very strongly acid; clear smooth boundary.

E—4 to 18 inches; yellowish brown (10YR 5/4) sandy loam; weak fine subangular blocky structure; friable, nonsticky, nonplastic; many very fine, fine, and medium and few coarse roots; very strongly acid; clear smooth boundary.

Bt—18 to 38 inches; strong brown (7.5YR 5/6) sandy clay loam; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; many very fine, fine, and medium and few coarse roots; faint patchy clay films on all faces of peds; very strongly acid; clear smooth boundary.

C—38 to 60 inches; light yellowish brown (10YR 6/4) sandy loam; massive; very friable, nonsticky, nonplastic; few very fine, fine, medium, and coarse roots; very strongly acid.

Range in Characteristics

Solum thickness: 20 to 40 inches
Depth to bedrock: Greater than 60 inches
Rock fragments: 0 to 12 percent
Mica flakes: None to common
Reaction: Very strongly acid to slightly acid throughout the profile

A horizon:
Hue—5YR to 2.5Y
Value—4 to 6
Chroma—2 to 6
Texture—sandy loam

E horizon (where present):
Hue—5YR to 2.5Y
Value—4 to 6
Chroma—3 to 8
Texture—loamy coarse sand, loamy sand, sandy loam, fine sandy loam, or loam

Bt horizon:
Hue—2.5YR to 10YR
Value—4 to 6
Chroma—4 to 8
Texture—sandy clay loam, sandy loam, or clay loam

BC horizon (where present)
Hue—2.5YR to 10YR
Value—4 to 6
Chroma—4 to 8
Mottles—in shades of red, brown, yellow, gray, or white or horizon is mottled in shades of the above; the gray and white mottles in the B horizon are relic weathered rock material and are not due to wetness
Texture—loam, clay loam, sandy clay loam, sandy loam, or fine sandy loam

C horizon:
Hue—2.5YR to 10YR
Value—4 to 6
Chroma—4 to 8
Mottles—in shades of red, brown, yellow, gray, or white or horizon is mottled in shades of red, brown, yellow, or white
Texture—loamy sand, coarse sandy loam, sandy loam, or sandy clay loam

Riverview Series

Physiographic province: Southern Piedmont
Landform: Piedmont flood plains
Parent material: Loamy alluvium
Drainage class: Well drained
Slowest saturated hydraulic conductivity: Moderately high
Depth class: Very deep
Slope range: 0 to 2 percent

Associated Soils

- Chewacla soils, which are somewhat poorly drained
- Wehadkee soils, which are poorly drained

Taxonomic Classification

Fine-loamy, mixed, active, thermic Fluventic Dystrudepts

Typical Pedon

Riverview silt loam, 0 to 2 percent slopes, occasionally flooded; located about 500 feet southeast of Cutbank Bridge on Highway VA-609 along the Nottoway River near the Dinwiddie County line; McKenney, Virginia 7.5 USGS Minute Quadrangles; lat. 36 degrees 54 minutes 0.35 seconds N. and long. 77 degrees 40 minutes 20.81 seconds W.

A—0 to 15 inches; dark yellowish brown (10YR 4/4) silt loam; weak fine granular structure; very friable; few very fine and fine and common medium roots; common fine mica flakes; moderately acid; clear smooth boundary.

Bw1—15 to 30 inches; yellowish brown (10YR 5/6) sandy loam; weak medium subangular blocky structure; friable; few medium and coarse roots; common fine mica flakes; strongly acid; gradual wavy boundary.

Bw2—30 to 48 inches; dark yellowish brown (10YR 4/6) sandy loam; moderate medium subangular blocky structure; friable; few medium and coarse roots; common medium prominent iron-manganese masses in matrix and common medium faint yellowish brown (10YR 5/6) masses of oxidized iron; common fine mica flakes; strongly acid; gradual wavy boundary.

Bw3—48 to 59 inches; dark yellowish brown (10YR 4/6) sandy loam; weak medium subangular blocky structure; friable; few medium roots; common medium prominent iron-manganese masses and common medium distinct brownish yellow (10YR 6/8) masses of oxidized iron; common fine mica flakes; strongly acid; gradual wavy boundary.

C—59 to 75 inches; brownish yellow (10YR 6/8) loamy sand; massive; friable; few medium roots; common medium prominent iron-manganese masses, common medium distinct yellowish brown (10YR 5/6) masses of oxidized iron in matrix, and many medium distinct light gray (10YR 7/2) iron depletions in matrix; common fine mica flakes; very strongly acid; gradual wavy boundary.

Cg—75 to 99 inches; light gray (10YR 7/2) sandy loam; massive; friable; common medium distinct brownish yellow (10YR 6/8) and strong brown (7.5YR 5/6) masses of oxidized iron in matrix; common fine mica flakes; very strongly acid.

Range in Characteristics

Solum thickness: 26 to 40 inches
Depth to bedrock: More than 5 feet

A horizon:
Hue—7.5YR or 10YR

Value—3 to 5
Chroma—3 to 5
Texture—very fine sandy loam, loam, or silt loam

Bw horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 to 6
Texture—very fine sandy loam, loam, or silt loam

C and Cg horizons:
Hue—7.5YR to 2.5Y
Value—3 to 5
Chroma—2 to 4
Texture—loamy sand to silty clay loam in the fine-earth fraction

Roanoke Series

Physiographic province: Coastal Plain
Landform: Stream terrace
Parent material: Clayey alluvial sediments
Drainage class: Poorly drained
Slowest saturated hydraulic conductivity: Low
Slope range: 0 to 2 percent

Associated Soils

- Chewacla soils, which are somewhat poorly drained and have less clay in the subsoil
- Bibb and Tomotley soils, which have less clay in the subsoil

Taxonomic Classification

Fine, mixed, semiactive, thermic Typic Endoaquults

Typical Pedon

Roanoke loam, 0 to 2 percent slopes, ponded; located near Traveler's Rest, about 2.3 miles northwest on Highway VA-721 from Lawson School, 0.3 mile west of Highway VA-721, north of Chapel Creek, in woodland; Aylett, Virginia USGS 7.5 Minute Quadrangles, NAD27; lat. 37 degrees 50 minutes 43.00 seconds N. and long. 77 degrees 5 minutes 32.00 seconds W.

Ap—0 to 5 inches; very dark grayish brown (2.5Y 3/2) loam; weak fine granular structure; very friable, slightly sticky, slightly plastic; many fine and medium roots and common coarse roots; strongly acid; clear smooth boundary.

Btg1—5 to 10 inches; dark grayish brown (2.5Y 4/2) clay loam; moderate medium subangular blocky structure; friable, moderately sticky, slightly plastic; common fine and medium roots and few coarse roots; common faint clay films on all faces of peds; few fine faint grayish brown (2.5Y 5/2) iron depletions and common medium distinct brownish yellow (10YR 6/8) masses of oxidized iron; strongly acid; gradual wavy boundary.

Btg2—10 to 30 inches; grayish brown (2.5Y 5/2) clay; moderate medium subangular blocky structure; friable, moderately sticky, moderately plastic; common fine roots and few medium and coarse roots; many faint clay films on all faces of peds; few coarse distinct brownish yellow (10YR 6/8) masses of oxidized iron; strongly acid; gradual wavy boundary.

Btg3—30 to 36 inches; light brownish gray (2.5Y 6/2) clay; moderate coarse

subangular blocky structure; friable, moderately sticky, moderately plastic; few fine and medium roots; common faint clay films on all faces of peds; very strongly acid; gradual wavy boundary.

BCg—36 to 42 inches; light brownish gray (2.5Y 6/2) sandy clay loam; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; common fine roots; few faint clay films on all faces of peds; common medium distinct brownish yellow (10YR 6/8) masses of oxidized iron; very strongly acid; common clay lenses; gradual smooth boundary.

Cg—42 to 62 inches; light brownish gray (2.5Y 6/2) stratified loamy sand to sandy loam to clay loam; structureless massive; very friable; common medium distinct brownish yellow (10YR 6/8) masses of oxidized iron; very strongly acid; common clay lenses in coarse strata.

Range in Characteristics

Solum thickness: 40 to 60 inches

Reaction: Extremely acid to strongly acid in the A, E, and B horizons, except in limed areas; extremely acid to slightly acid in the C horizon

Ap horizon:

Hue—10YR to 5Y
Value—2 to 6
Chroma—0 to 2
Texture—fine sandy loam, loam, or silt loam

Eg horizon:

Hue—neutral or 10YR to 5Y
Value—4 to 7
Chroma—0 to 2
Texture—fine sandy loam, loam, or silt loam

BAg or BEg horizon (if it occurs):

Hue—neutral or 10YR to 5Y
Value—4 to 7
Chroma—0 to 2
Texture—loam, silt loam, clay loam, or silty clay loam

Btg horizon:

Hue—neutral or 10YR to 5Y
Value—4 to 7
Chroma—0 to 2
Redoximorphic features—iron masses in shades of brown, yellow, or red and iron depletions in shades of olive or gray
Texture—clay loam, silty clay loam, clay, or silty clay

BCg horizon:

Hue—neutral or 10YR to 5Y
Value—4 to 7
Chroma—-0 to 2
Redoximorphic features—iron masses in shades of brown, yellow, or red and iron depletions in shades of olive or gray
Texture—sandy clay loam, clay loam, or silty clay loam

Cg horizon:

Hue—neutral or 10YR to 5Y
Value—5 to 7
Chroma—0 to 2

Redoximorphic features—iron masses in shades of brown, yellow, or red and iron depletions in shades of olive or gray
Texture—sand to clay; commonly stratified

Rumford Series

Physiographic province: Coastal Plain
Landform: Marine terraces
Parent material: Loamy marine sediments
Drainage class: Well drained
Slowest saturated hydraulic conductivity: High
Slope range: 0 to 15 percent

Associated Soils

- Nevarc and Slagle soils, which are moderately well drained and have more clay in the subsoil
- Emporia and Suffolk soils, which have more clay in the subsoil

Taxonomic Classification

Coarse-loamy, siliceous, subactive, thermic Typic Hapludults

Typical Pedon

Rumford loamy sand, 0 to 6 percent slopes; located about 1.4 miles north on Highway VA-721 from St. Stephens Church, 100 feet east of Highway VA-721 on a farm lane, 50 feet south of the farm lane, in cropland; Aylett, Virginia USGS 7.5 Minute Quadrangles, NAD27; lat. 37 degrees 52 minutes 10.00 seconds N. and long. 77 degrees 5 minutes 55.00 seconds W.

Ap—0 to 7 inches; brown (10YR 4/3) loamy sand; weak fine granular structure; very friable, nonsticky, nonplastic; many fine and medium roots; many fine vesicular pores; strongly acid; abrupt smooth boundary.
E—7 to 14 inches; light yellowish brown (10YR 6/4) loamy sand; weak fine granular structure; very friable, nonsticky, nonplastic; many fine and medium roots; common fine vesicular pores; strongly acid; clear wavy boundary.
Bt1—14 to 24 inches; dark yellowish brown (10YR 4/6) sandy loam; weak medium subangular blocky structure; very friable, nonsticky, nonplastic; many fine and medium roots; common fine vesicular pores; few faint clay bridges between sand grains; strongly acid; clear wavy boundary.
Bt2—24 to 38 inches; yellowish brown (10YR 5/6) sandy loam; weak medium subangular blocky structure; friable, nonsticky, nonplastic; many very fine and fine roots; common fine vesicular pores; few faint clay bridges between sand grains; strongly acid; clear wavy boundary.
BC—38 to 55 inches; yellowish brown (10YR 5/6) loamy sand; weak medium subangular blocky structure; very friable, nonsticky, nonplastic; few fine roots; common medium (0.5 to 1 cm thick) faint dark yellowish brown (10YR 4/6) lamellae; white (10YR 8/2) vertical sand lenses; few fine vesicular pores; few faint clay bridges between sand grains; moderately acid; clear wavy boundary.
C1—55 to 84 inches; brownish yellow (10YR 6/8) sand; single grain; loose; few fine roots; many coarse prominent white (10YR 8/2) lenses of uncoated coarse sand grains; moderately acid; gradual wavy boundary.
C2—84 to 95 inches; yellowish brown (10YR 5/6) sandy loam; single grain; loose; few coarse prominent white (10YR 8/2) lenses of uncoated coarse sand grains; moderately acid; gradual wavy boundary.
C3—95 to 99 inches; brownish yellow (10YR 6/6) loamy sand; single grain; loose; few

coarse distinct white (10YR 8/2) lenses of uncoated coarse sand grains; moderately acid.

Range in Characteristics

Reaction: Extremely acid to strongly acid in the A and E horizons, except in limed areas; extremely acid to moderately acid in the B horizons; extremely acid to slightly acid in the C horizon

Ap horizon:
Hue—10YR
Value—3 to 6
Chroma—2 to 4
Texture—loamy sand, loamy fine sand, sandy loam, or fine sandy loam

E horizon:
Hue—10YR or 2.5Y
Value—4 to 7
Chroma—3 or 4
Texture—loamy sand, loamy fine sand, sandy loam, or fine sandy loam

BE horizon (where present):
Hue—5YR to 2.5Y
Value—4 or 5
Chroma—4 to 8
Texture—loamy sand, sandy loam, or fine sandy loam

Bt horizon:
Hue—5YR to 2.5Y
Value—4 or 5
Chroma—4 to 8
Texture—sandy loam, fine sandy loam, or sandy clay loam

BC horizon:
Hue—5YR to 2.5Y
Value—4 or 5
Chroma—4 to 8
Texture—loamy sand, sandy loam, or fine sandy loam

C horizon:
Hue—10YR or 2.5Y
Value—5 to 8
Chroma—2 to 8
Texture—dominantly sand to fine sandy loam; thin strata of sandy clay loam are in some pedons; horizon is commonly stratified

Slagle Series

Physiographic province: Coastal Plain
Landform: Coastal Plain uplands
Parent material: Loamy fluviomarine deposits
Drainage class: Moderately well drained
Slowest saturated hydraulic conductivity: Moderately low
Slope range: 0 to 15 percent

Associated Soils

- Kempsville soils, which are well drained
- Norfolk soils, which are well drained

Taxonomic Classification

Fine-loamy, siliceous, subactive, thermic Aquic Hapludults

Typical Pedon

Slagle fine sandy loam, 0 to 2 percent slopes; located about 0.6 mile southwest of the junction of Highways VA-615 and VA-609 and 800 feet south of Highway VA-609; Providence Forge, Virginia USGS 7.5 Minute Quadrangles, NAD27; lat. 37 degrees 28 minutes 52.00 seconds N. and long. 77 degrees 7 minutes 21.00 seconds W.

Ap—0 to 10 inches; brown (10YR 5/3) fine sandy loam; weak fine granular structure; very friable, slightly sticky, nonplastic; common fine roots throughout; common fine and medium tubular pores; 2 percent rounded quartzite gravel; strongly acid; abrupt smooth boundary.

E—10 to 16 inches; light yellowish brown (10YR 6/4) fine sandy loam; weak fine and medium granular structure; very friable, slightly sticky, slightly plastic; few fine roots throughout; common fine and medium tubular pores; 2 percent rounded quartzite gravel; strongly acid; gradual smooth boundary.

Bt1—16 to 21 inches; yellowish brown (10YR 5/4) sandy clay loam; weak medium subangular blocky structure; friable, moderately sticky, moderately plastic; few fine roots throughout; common fine and medium tubular pores; few distinct continuous clay films on faces of peds and few clay bridges on sand and gravel; common fine faint light yellowish brown (10YR 6/4) masses of oxidized iron; 2 percent rounded quartzite gravel; strongly acid; gradual smooth boundary.

Bt2—21 to 28 inches; yellowish brown (10YR 5/8) sandy clay loam; weak medium subangular blocky structure; friable, moderately sticky, moderately plastic; few fine roots throughout; common fine and medium tubular pores; many distinct continuous clay films on faces of peds and many clay bridges on sand and gravel; common fine prominent pale brown (10YR 6/3) and light brownish gray (10YR 6/2) iron depletions; 2 percent rounded quartzite gravel; strongly acid; clear smooth boundary.

Bt3—28 to 40 inches; yellowish brown (10YR 5/8) sandy clay loam; weak fine subangular blocky, coarse subangular blocky, and coarse angular blocky structure; friable, moderately sticky, slightly plastic; few fine roots throughout; few fine and medium tubular pores; common distinct continuous clay films on faces of peds; few fine distinct yellowish red (5YR 5/8) masses of oxidized iron and common coarse prominent light brownish gray (10YR 6/2) iron depletions; 2 percent rounded quartzite gravel; strongly acid; gradual smooth boundary.

BC—40 to 51 inches; light brownish gray (10YR 6/2), yellowish brown (10YR 5/6), pale brown (10YR 6/3), and strong brown (7.5YR 5/6) sandy loam; weak coarse angular blocky structure; friable, slightly sticky, nonplastic; few fine tubular and few fine vesicular pores; 2 percent rounded quartzite gravel; very strongly acid; gradual smooth boundary.

C—51 to 65 inches; strong brown (7.5YR 5/6), yellowish brown (10YR 5/6), and light brownish gray (10YR 6/2) fine sandy loam; massive; friable, slightly sticky, nonplastic; few fine tubular and few fine vesicular pores; 2 percent rounded quartzite gravel; extremely acid.

Range in Characteristics

Solum thickness: More than 40 inches
Depth to bedrock: More than 5 feet
Rock fragments: 0 to 5 percent rounded quartz gravel

A horizon:
Hue—10YR or 2.5Y
Value—2 to 6

Chroma—1 to 4
Texture—sandy loam, fine sandy loam, or loam

E horizon:
Hue—10YR or 2.5Y
Value—5 or 6
Chroma—3 or 4
Texture—sandy loam, fine sandy loam, or loam

Bt horizon (upper part):
Hue—5YR to 10YR
Value—5 to 7
Chroma—3 to 8
Redoximorphic features—iron masses in shades of brown, yellow, or red; iron depletions in shades of gray
Texture—sandy loam, fine sandy loam, sandy clay loam, or clay loam

Bt horizon (lower part):
Hue—7.5YR to 5Y
Value—4 to 7
Chroma—1 to 8
Redoximorphic features—iron masses in shades of brown, yellow, or red; iron depletions in shades of gray
Texture—sandy loam, sandy clay loam, clay loam, or clay

BC horizon:
Hue—7.5YR to 5Y
Value—4 to 7
Chroma—1 to 8
Redoximorphic features—iron masses in shades of brown, yellow, or red; iron depletions in shades of gray
Texture—sandy loam, sandy clay loam, clay loam, or clay

C horizon:
Hue—2.5YR to 5Y
Value—3 to 8
Chroma—1 to 8
Redoximorphic features—iron masses in shades of brown, yellow, or red; iron depletions in shades of gray
Texture—loamy sand to clay

State Series

Physiographic province: Coastal Plain
Landform: Stream terraces
Parent material: Loamy alluvial sediments
Drainage class: Well drained
Slowest saturated hydraulic conductivity: Moderately high
Slope range: 0 to 6 percent

Associated Soils

- Bojac soils, which have less clay in the subsoil
- Nevarc soils, which are moderately well drained and have more clay in the subsoil
- Tarboro soils, which are somewhat excessively drained and have less clay

Taxonomic Classification

Fine-loamy, mixed, semiactive, thermic Typic Hapludults

Typical Pedon

State fine sandy loam, 0 to 2 percent slopes, very rarely flooded; located 0.6 mile south on Highway VA-633 from its junction with Highway VA-620, about 700 feet northeast along a field road, 525 feet north of the field road, in cropland; King And Queen Court House, Virginia USGS 7.5 Minute Quadrangles, NAD27; lat. 37 degrees 42 minutes 33.00 seconds N. and long. 76 degrees 57 minutes 56.00 seconds W.

Ap—0 to 8 inches; brown (10YR 5/3) fine sandy loam; weak fine granular structure; very friable, nonsticky, nonplastic; many very fine and fine and few medium and coarse roots; few fine tubular pores; strongly acid; abrupt smooth boundary.

E—8 to 17 inches; light yellowish brown (10YR 6/4) fine sandy loam; moderate fine platy structure; friable, nonsticky, nonplastic; common very fine and fine roots; hard and compact in place; few fine vesicular pores; strongly acid; clear wavy boundary.

Bt1—17 to 28 inches; yellowish brown (10YR 5/6) sandy clay loam; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; common very fine and fine and few medium roots; few fine tubular and vesicular pores; common distinct discontinuous clay films on all faces of peds; common fine mica flakes; very strongly acid; clear smooth boundary.

Bt2—28 to 36 inches; yellowish brown (10YR 5/6) sandy loam; weak medium subangular blocky structure; very friable, nonsticky, slightly plastic; few very fine and fine roots; few fine tubular pores; few faint discontinuous clay films on all faces of peds; common fine mica flakes; very strongly acid; clear smooth boundary.

C1—36 to 46 inches; yellowish brown (10YR 5/8) loamy fine sand; weak fine granular structure; very friable, slightly sticky, nonplastic; few very fine and fine roots; few fine tubular pores; common fine mica flakes; very strongly acid; clear smooth boundary.

C2—46 to 56 inches; brownish yellow (10YR 6/6) and very pale brown (10YR 7/3) loamy sand; weak fine granular structure; very friable, nonsticky, nonplastic; few fine prominent (7.5YR 5/8) lamellae; few fine and medium mica flakes; very strongly acid; clear smooth boundary.

C3—56 to 62 inches; olive yellow (2.5Y 6/6) and very pale brown (10YR 7/3) loamy fine sand; single grain; loose; very strongly acid.

Range in Characteristics

Solum thickness: 30 to 60 inches or more
Rock fragment content: 0 to 2 percent in the A, E, and B horizons; 0 to 15 percent in the C horizons
Reaction: Extremely acid to strongly acid in the A, E, and B horizons, except in limed areas; extremely acid to slightly acid in the C horizons

Ap horizon:
Hue—7.5YR to 2.5Y
Value—3 to 6
Chroma—2 to 6
Texture—loamy sand, loamy fine sand, sandy loam, fine sandy loam, loam, or silt loam

E horizon:
Hue—7.5YR to 2.5Y
Value—5 to 7

Chroma—3 to 8
Texture—loamy sand, loamy fine sand, sandy loam, fine sandy loam, loam, or silt loam

BE horizon (where present):
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 8
Texture—sandy loam, fine sandy loam, loam, silt loam, or sandy clay loam

Bt horizon (upper part):
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 8
Redoximorphic features—iron masses in shades of brown, yellow, or red
Texture—sandy loam, loam, silt loam, sandy clay loam, or clay loam

Bt horizon (lower part):
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—4 to 8
Redoximorphic features—iron masses in shades of brown, yellow, or red; iron depletions in shades of gray
Texture—sandy loam, loam, silt loam, sandy clay loam, or clay loam

BC horizon (where present):
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—4 to 8
Redoximorphic features—iron masses in shades of brown, yellow, or red; iron depletions in shades of gray
Texture—sandy loam, fine sandy loam, loam, or sandy clay loam

C horizon:
Hue—7.5YR to 2.5Y
Value—4 to 7
Chroma—2 to 8
Redoximorphic features—iron masses in shades of brown, yellow, or red; iron depletions in shades of gray
Texture—sand, loamy sand, loamy fine sand, or sandy loam

Suffolk Series

Physiographic province: Coastal Plain
Landform: Marine terraces
Parent material: Loamy marine sediments
Drainage class: Well drained
Slowest saturated hydraulic conductivity: Moderately high
Slope range: 0 to 6 percent

Associated Soils

- Emporia soils, which have more clay in the lower part of the subsoil and in the substratum
- Rumford soils, which have less clay in the subsoil
- Slagle soils, which are moderately well drained

Taxonomic Classification

Fine-loamy, siliceous, semiactive, thermic Typic Hapludults

Typical Pedon

Suffolk fine sandy loam, 0 to 2 percent slopes; located about 1.4 miles north on Highway VA-721 from St. Stephens Church, 0.6 mile northeast along a farm lane, 210 feet northeast along the farm lane, in cropland; Aylett, Virginia USGS 7.5 Minute Quadrangles, NAD27; lat. 37 degrees 49 minutes 25.00 seconds N. and long. 77 degrees 3 minutes 34.00 seconds W.

Ap—0 to 8 inches; brown (10YR 4/3) fine sandy loam; weak fine granular structure; very friable; many fine and medium roots; common fine vesicular pores; moderately acid; abrupt smooth boundary.

E—8 to 16 inches; yellowish brown (10YR 5/4) sandy loam; moderate medium granular structure; very friable; few medium and few very fine roots; common very fine vesicular pores; moderately acid; clear smooth boundary.

BE—16 to 21 inches; yellowish brown (10YR 5/6) sandy loam; weak medium subangular blocky structure; very friable; few medium and few very fine roots; few very fine and fine vesicular pores; moderately acid; clear smooth boundary.

Bt1—21 to 28 inches; dark yellowish brown (10YR 4/6) sandy loam; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; few fine and medium roots; partially decomposed tree roots 1 inch in diameter; common fine tubular pores; few distinct clay films on all faces of peds; moderately acid; clear smooth boundary.

Bt2—28 to 37 inches; strong brown (7.5YR 4/6) sandy clay loam; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; common fine roots; common fine tubular pores; common distinct clay films on all faces of peds; moderately acid; abrupt smooth boundary.

BC—37 to 43 inches; strong brown (7.5YR 5/6) sandy loam; weak medium subangular blocky structure; very friable, slightly sticky, slightly plastic; few fine roots; few fine vesicular pores; few distinct clay films on all faces of peds; moderately acid; abrupt smooth boundary.

C1—43 to 59 inches; yellowish brown (10YR 5/8) loamy sand; weak medium granular structure; very friable, nonsticky, nonplastic; few fine roots; many fine distinct white (10YR 8/2) sand lenses along root channels; few fine vesicular pores; moderately acid; gradual smooth boundary.

C2—59 to 65 inches; yellowish brown (10YR 5/8), very pale brown (10YR 8/2), and brownish yellow (10YR 6/6) sand; single grain; loose; moderately acid.

Range in Characteristics

Solum thickness: 30 to 50 inches
Rock fragment content: 0 to 5 percent in the A, E, and B horizons; 0 to 10 percent in the C horizons
Reaction: Extremely acid to moderately acid, except in limed areas

Ap horizon:
Hue—7.5YR to 2.5Y
Value—3 to 6
Chroma—1 to 4
Texture—loamy sand, loamy fine sand, sandy loam, or fine sandy loam

E horizon:
Hue—7.5YR to 2.5Y
Value—5 to 7

Chroma—3 to 6
Texture—loamy sand, loamy fine sand, sandy loam, or fine sandy loam

BE horizon:
Hue—7.5YR to 2.5Y
Value—5 to 7
Chroma—3 to 6
Texture—sandy loam, fine sandy loam, or loam

Bt horizon:
Hue—7.5YR to 10YR; some pedons have a subhorizon with hue of 5YR to 2.5Y
Value—4 to 6
Chroma—4 to 8
Texture—sandy loam, fine sandy loam, loam, sandy clay loam, or clay loam

BC horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 8
Texture—loamy sand, loamy fine sand, sandy loam, or fine sandy loam

C horizon:
Hue—7.5YR to 2.5Y
Value—5 to 7
Chroma—2 to 8
Texture—dominantly sand, fine sand, loamy sand, or loamy fine sand; some pedons have a thin substratum of sandy loam

Tarboro Series

Physiographic province: Coastal Plain
Landform: Stream terraces
Parent material: Sandy alluvial sediments
Drainage class: Somewhat excessively drained
Slowest saturated hydraulic conductivity: High
Slope range: 0 to 6 percent

Associated Soils

- Bojac and Wickham soils, which are well drained and have more clay in the subsoil

Taxonomic Classification

Mixed, thermic Typic Udipsamments

Typical Pedon

Tarboro-Bojac complex, 0 to 6 percent slopes, very rarely flooded; located 0.8 mile south of the junction of Highways VA-639 and VA-628 on Highway VA-628, about 150 feet west of Highway VA-628, in cropland; Aylett, Virginia USGS 7.5 Minute Quadrangles, NAD27; lat. 37 degrees 50 minutes 16.00 seconds N. and long. 77 degrees 7 minutes 14.00 seconds W.

Ap—0 to 7 inches; brown (10YR 4/3) sand; single grain; loose; common fine and medium roots; moderately acid; abrupt smooth boundary.
C1—7 to 22 inches; yellowish brown (10YR 5/6) sand; single grain; loose; few fine and medium roots; moderately acid; gradual wavy boundary.
C2—22 to 32 inches; yellowish brown (10YR 5/6) sand; single grain; loose; 10 percent rounded quartz gravel; strongly acid; gradual wavy boundary.

C3—32 to 48 inches; yellowish brown (10YR 5/6) and reddish yellow (7.5YR 6/6) sand; single grain; loose; common reddish yellow (7.5YR 6/6) coatings on sand grains; strongly acid; gradual wavy boundary.

C4—48 to 58 inches; brownish yellow (10YR 6/6) and reddish yellow (7.5YR 6/6) sand; single grain; loose; strongly acid; gradual wavy boundary.

C5—58 to 62 inches; yellowish brown (10YR 5/6) sand; single grain; loose; few reddish yellow (7.5YR 6/6) strata; some stratified fine gravel; strongly acid.

Range in Characteristics

Thickness of sandy material: 80 inches or more
Reaction: Strongly acid to slightly acid

Ap horizon:
Hue—10YR or 2.5Y
Value—3 to 8
Chroma—2 to 6
Texture—sand, loamy sand, or loamy fine sand

C horizon:
Hue—7.5YR to 2.5Y
Value—4 to 7
Chroma—3 to 8
Texture—sand, loamy sand, or loamy fine sand

Tomotley Series

Physiographic province: Coastal Plain
Landform: Stream terraces
Parent material: Loamy alluvial sediments
Drainage class: Poorly drained
Slowest saturated hydraulic conductivity: Moderately high
Slope range: 0 to 2 percent

Associated Soils

- Bibb soils, which do not have developed subsoils
- Rappahannock soils, which are very poorly drained and have more clay in the subsoil

Taxonomic Classification

Fine-loamy, mixed, semiactive, thermic Typic Endoaquults

Typical Pedon

Tomotley-Roanoke complex, 0 to 2 percent slopes, rarely flooded; located about 0.1 mile north on Highway VA-617 from the junction of Highways VA-614 and VA-617, about 75 feet northeast of Highway VA-617, in woodland; Dunnsville, Virginia USGS 7.5 Minute Quadrangles, NAD27; lat. 37 degrees 45 minutes 43.00 seconds N. and long. 76 degrees 50 minutes 41.00 seconds W.

A—0 to 5 inches; dark grayish brown (10YR 4/2) sandy loam; weak fine subangular blocky structure; very friable, slightly sticky, slightly plastic; many fine and medium and common coarse roots; common fine and medium tubular pores; few medium faint brown (10YR 5/3) masses of oxidized iron; strongly acid; clear smooth boundary.

BEg—5 to 11 inches; grayish brown (10YR 5/2) loam; moderate fine subangular blocky structure; very friable, slightly sticky, slightly plastic; common fine and

medium and few coarse roots; common fine and medium tubular and few coarse tubular pores; common medium distinct yellowish brown (10YR 5/4) masses of oxidized iron; strongly acid; clear smooth boundary.

Btg1—11 to 19 inches; gray (10YR 5/1) sandy loam; moderate medium subangular blocky structure; firm, moderately sticky, moderately plastic; common fine and few medium roots; common fine and medium tubular pores; common distinct clay films on all faces of peds; common medium prominent yellowish brown (10YR 5/6) masses of oxidized iron; strongly acid; gradual smooth boundary.

Btg2—19 to 33 inches; gray (10YR 6/1) sandy clay loam; weak medium subangular blocky structure; firm, moderately sticky, moderately plastic; few fine and medium roots; common fine and medium tubular pores; common distinct clay films on all faces of peds; few fine prominent strong brown (7.5YR 4/6) and common medium prominent yellowish brown (10YR 5/6) masses of oxidized iron; strongly acid; gradual smooth boundary.

BCg—33 to 45 inches; light brownish gray (2.5Y 6/2) sandy clay loam; weak fine subangular blocky structure; friable, slightly sticky, slightly plastic; few faint clay films on all faces of peds; few medium distinct dark yellowish brown (10YR 4/4) masses of oxidized iron; 3 percent rounded quartz gravel; very strongly acid; gradual smooth boundary.

Cg—45 to 62 inches; gray (10YR 6/1) sandy loam; massive; common medium prominent yellowish brown (10YR 5/4) masses of oxidized iron; 5 percent rounded quartz gravel; very strongly acid.

Range in Characteristics

Solum thickness: 30 to 60 inches or more
Rock fragment content: 0 to 5 percent throughout the profile
Reaction: Extremely acid to strongly acid in the A, E, and B horizons, except in limed areas; extremely acid to moderately acid in the BC and C horizons

A horizon:
Hue—10YR or 2.5Y
Value—3 to 6
Chroma—1 or 2
Texture—loamy sand, sandy loam, fine sandy loam, loam, or silt loam

Eg horizon (where present):
Hue—10YR or 2.5Y
Value—4 to 7
Chroma—1 or 2
Redoximorphic features—iron masses in shades of brown, yellow, or red; iron depletions in shades of olive or gray
Texture—loamy sand, sandy loam, fine sandy loam, loam, or silt loam

BEg horizon:
Hue—10YR or 2.5Y
Value—4 to 7
Chroma—1 or 2
Redoximorphic features—iron masses in shades of brown, yellow, or red; iron depletions in shades of olive or gray
Texture—sandy loam, fine sandy loam, loam, or silt loam

Btg horizon:
Hue—neutral or 10YR to 5Y
Value—4 to 7
Chroma—0 to 2

Redoximorphic features—iron masses in shades of brown, yellow, or red; iron depletions in shades of olive or gray
Texture—sandy loam, fine sandy loam, loam, or sandy clay loam; silt loam or silty clay loam are in some pedons; sandy clay or clay occur below a depth of 40 inches in some pedons

BCg horizon:
Hue—neutral or 10YR to 5Y
Value—4 to 8
Chroma—0 to 2
Redoximorphic features—iron masses in shades of brown, yellow, or red; iron depletions in shades of olive or gray
Texture—fine sandy loam, sandy loam, loam, clay loam, sandy clay loam, silt loam, or sandy clay; horizon commonly has thin strata or pockets of contrasting textures

Cg horizon:
Hue—neutral or 10YR to 5Y
Value—4 to 8
Chroma—0 to 2
Redoximorphic features—iron masses in shades of brown, yellow, or red; iron depletions in shades of olive or gray
Texture—dominantly sandy loam, fine sandy loam, sandy clay loam, or clay loam; horizon commonly is stratified and ranges from sand to clay

Wateree Series

Physiographic province: Southern Piedmont
Landform: Piedmont uplands
Parent material: Loamy residuum weathered from granite and gneiss
Drainage class: Well drained
Slowest saturated hydraulic conductivity: High
Slope range: 25 to 70 percent

Associated Soils

- Appling soils, which have more clay
- Cecil soils, which have more clay
- Rion soils, which have more clay

Taxonomic Classification

Coarse-loamy, mixed, semiactive, thermic Ruptic-Ultic Dystrochrepts

Typical Pedon

Wateree-Rock outcrop complex, 25 to 70 percent slopes; located in Pocahontas State Forest, 1 mile east of Highway VA-653 and 1 mile south of Highway VA-651; Chesterfield, Virginia USGS 7.5 Minute Quadrangles, NAD27; lat. 37 degrees 23 minutes 40.00 seconds N. and long. 77 degrees 34 minutes 30.00 seconds W.

A—0 to 2 inches; grayish brown (2.5Y 5/2) sandy loam; weak fine granular structure; very friable; many fine and medium roots; common fine mica flakes; very strongly acid; abrupt smooth boundary.
E—2 to 9 inches; light yellowish brown (10YR 6/4) sandy loam; weak fine granular structure; very friable; many fine and medium roots; common fine mica flakes; very strongly acid; clear smooth boundary.
Bw—9 to 22 inches; yellowish brown (10YR 5/4) sandy loam; common distinct

yellowish brown (10YR 5/6) and common distinct yellowish red (5YR 5/6) mottles; weak fine granular and weak coarse subangular blocky structure; friable, slightly sticky, slightly plastic; few fine and medium roots; common fine mica flakes; 5 percent angular quartzite gravel; very strongly acid; gradual smooth boundary.

Cr—22 to 80 inches; weathered bedrock.

Range in Characteristics

Solum thickness: 20 to 30 inches
Depth to bedrock: 2 to 5 feet or more
Rock fragments: 0 to 25 percent angular quartz and granite gravel

A horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—2 to 4
Texture (fine-earth fraction)—fine sandy loam or sandy loam

E horizon:
Hue—10YR
Value—4 to 7
Chroma—3 or 4
Texture (fine-earth fraction)—fine sandy loam or sandy loam

Bw horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—4 to 8
Texture (fine-earth fraction)—sandy loam in the fine-earth fraction

C or Cr horizon:
Hue—5YR to 2.5Y
Value—5 or 6
Chroma—6 or 8
Texture—weathered rock material that crushes to sandy loam

Wehadkee Series

Physiographic province: Southern Coastal Plain
Landform: Flood plains
Parent material: Loamy alluvial sediments
Drainage class: Poorly drained
Slowest saturated hydraulic conductivity: Moderately high
Slope range: 0 to 2 percent

Associated Soils

- Altavista soils, which are moderately well drained and not subject to frequent flooding
- Riverview soils, which are well drained
- Tarboro soils, which are well drained, sandy throughout, and not subject to flooding

Taxonomic Classification

Fine-loamy, mixed, active, nonacid, thermic Fluvaquentic Endoaquepts

Typical Pedon

Wedhadkee silt loam, 0 to 2 percent slopes, frequently flooded; located at the edge of an area of mixed hardwoods, 200 yards southeast of Highway VA-615 at the Hanover

County Bridge, 100 yards north of the Pamunkey River; Studley, Virginia USGS 7.5 Minute Quadrangles, NAD27; lat. 37 degrees 42 minutes 55.00 seconds N. and long. 77 degrees 16 minutes 57.00 seconds W.

Ap—0 to 10 inches; brown (10YR 4/3) and grayish brown (10YR 5/2) loam; weak medium granular structure; friable, slightly sticky, slightly plastic; common fine and medium roots; few fine mica flakes; strongly acid; clear smooth boundary.

Bg1—10 to 20 inches; light brownish gray (10YR 6/2) loam; weak fine subangular blocky structure; very friable, slightly sticky, slightly plastic; common fine and few medium roots; many medium prominent yellowish brown (10YR 5/6) masses of oxidized iron; few fine mica flakes; very strongly acid; gradual smooth boundary.

Bg2—20 to 32 inches; light brownish gray (10YR 6/2) loam; massive parting to weak medium subangular blocky structure; friable, moderately sticky, moderately plastic; few fine roots; many medium prominent yellowish brown (10YR 5/6) masses of oxidized iron; common fine and medium mica flakes; very strongly acid; gradual smooth boundary.

Bg3—32 to 44 inches; gray (10YR 6/1) clay loam; massive parting to weak medium subangular blocky structure; friable, moderately sticky, moderately plastic; many medium prominent reddish yellow (7.5YR 6/6) masses of oxidized iron; common fine and medium mica flakes; very strongly acid; gradual smooth boundary.

Cg—44 to 70 inches; light gray (10YR 7/1) clay loam; massive; firm, moderately sticky, moderately plastic; many medium prominent reddish yellow (7.5YR 6/6) masses of oxidized iron; common fine and medium mica flakes; very strongly acid.

Range in Characteristics

Solum thickness: 20 to 60 inches or more
Soil reaction: Very strongly acid to slightly acid
Mica flakes: Few to many in most pedons

A horizon (where present):
Hue—neutral or 10YR or 2.5Y
Value—4 to 6
Chroma—0 to 4
Redoximorphic features—iron masses in shades of brown, yellow, or red
Texture—loam or silt loam

Ap horizon:
Hue—neutral or 10YR or 2.5Y
Value—4 to 6
Chroma—0 to 4
Redoximorphic features—iron masses in shades of brown, yellow, or red
Texture—loam or silt loam

Bg horizon:
Hue—neutral or 10YR to 5Y
Value—4 to 6
Chroma—0 to 2
Redoximorphic features—iron masses in shades of brown, yellow, or red; iron depletions in shades of gray
Texture—loam, silt loam, sandy clay loam, clay loam, or silty clay loam

Cg horizon:
Hue—neutral or 10YR to 5Y
Value—4 to 7
Chroma—0 to 2
Redoximorphic features—iron masses in shades of brown, yellow, or red; iron depletions in shades of gray

Texture—sandy loam, loam, or silt loam; strata of sand, loamy sand, sandy clay loam, clay loam, or silty clay loam are in some pedons; sandy textures occur only below a depth of 40 inches

Wickham Series

Physiographic province: Southern Coastal Plain
Landform: Stream terraces
Parent material: Loamy alluvial sediments
Drainage class: Well drained
Slowest saturated hydraulic conductivity: Moderately high
Slope range: 0 to 6 percent

Associated Soils

- Altavista soils, which are moderately well drained
- Bojac soils, which have less clay in the subsoil
- Roanoke soils, which are poorly drained and have more clay in the subsoil
- State soils, which have strong brown colors in the subsoil
- Tomotley soils, which are poorly drained

Taxonomic Classification

Fine-loamy, mixed, semiactive, thermic Typic Hapludults

Typical Pedon

Wickham fine sandy loam, 2 to 6 percent slopes, very rarely flooded; located in an area of mixed hardwoods and pines, 300 yards south of Highway VA-630, on the west boundary of Worsham Farm; New Kent, Virginia USGS 7.5 Minute Quadrangles, NAD27; lat. 37 degrees 34 minutes 20.00 seconds N. and long. 76 degrees 56 minutes 22.00 seconds W.

A—0 to 2 inches; dark grayish brown (10YR 4/2) loamy fine sand; weak fine granular structure; very friable, nonsticky, nonplastic; common fine and medium roots; common fine and medium tubular pores; few fine mica flakes; strongly acid; abrupt smooth boundary.

E—2 to 15 inches; light yellowish brown (10YR 6/4) loamy fine sand; weak fine and medium granular structure; very friable, nonsticky, nonplastic; common fine and medium roots; common medium tubular pores; few fine mica flakes; strongly acid; clear smooth boundary.

BE—15 to 19 inches; strong brown (7.5YR 5/6) fine sandy loam; weak fine and medium subangular blocky structure; very friable, nonsticky, nonplastic; common fine and medium roots; common medium tubular pores; few faint clay films on all faces of peds; few fine mica flakes; strongly acid; clear smooth boundary.

Bt—19 to 37 inches; strong brown (7.5YR 5/6) sandy clay loam; moderate medium subangular blocky structure; friable, moderately sticky, moderately plastic; common fine roots; common medium tubular pores; few faint clay films on all faces of peds; common fine mica flakes; strongly acid; gradual smooth boundary.

C1—37 to 60 inches; yellowish red (5YR 5/8) and strong brown (7.5YR 5/6) loamy fine sand; massive; very friable, nonsticky, nonplastic; few fine roots; many fine mica flakes; strongly acid; gradual smooth boundary.

C2—60 to 70 inches; yellowish brown (10YR 5/8) fine sand; single grain; loose; many fine mica flakes; strongly acid.

Range in Characteristics

Solum thickness: 36 to 60 inches or more

Rock fragments: 0 to 5 percent rounded gravel in the A, E, BA, BE, Bt, and BC horizons; 0 to 15 percent in the C horizon
Soil reaction: Very strongly acid to moderately acid, except in limed areas
Mica flakes: None to many throughout the profile

A horizon:
Hue—5YR to 10YR
Value—4 or 5
Chroma—2 to 6
Texture—loamy sand, loamy fine sand, sandy loam, fine sandy loam, or loam

Ap horizon (where present):
Hue—5YR to 10YR
Value—4 to 6
Chroma—2 to 8
Texture—loamy sand, loamy fine sand, sandy loam, fine sandy loam, or loam

E horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—2 to 6
Texture—loamy sand, loamy fine sand, sandy loam, fine sandy loam, or loam

BA or BE horizon:
Hue—2.5YR to 7.5YR
Value—4 to 6
Chroma—6 or 8
Texture—sandy loam, fine sandy loam, or loam

Bt horizon:
Hue—2.5YR to 7.5YR
Value—4 to 6
Chroma—4 to 8
Texture—sandy loam, loam, sandy clay loam, or clay loam

BC horizon (where present):
Hue—2.5YR to 10YR
Value—4 to 6
Chroma—3 to 8
Texture—sandy loam, fine sandy loam, loam, sandy clay loam, or clay loam

C horizon:
Hue—2.5YR to 10YR
Value—4 to 6
Chroma—3 to 8
Texture—sand to sandy clay loam

Formation of the Soils

This section describes the factors of soil formation and relates them to the soils in the survey area. It also explains the major processes of soil horizon development.

Factors of Soil Formation

Soils are intimate mixtures of broken and partly or completely weathered rock, minerals, organic matter, living plants and animals, water, and air. They occur as part of the natural landscape and differ from place to place. They differ in occurrence, in degree of development of various horizons, in mineral content, in depth over bedrock, and in texture, color, and slope. The characteristics of the soils in any given area depend upon the interaction of the five factors of soil formation, which are parent material, climate, living organisms, topography, and time. Topography over time modifies the effect of climate and living organisms on parent material (Jenny, 1941).

Parent Material

Parent material is the unconsolidated material in which a soil forms. It is largely responsible for the chemical and mineral composition of soils. The three broad classes of parent material in Caroline County are residual, fluviomarine, and alluvial materials.

Residual parent material has weathered in place from the underlying bedrock and forms the basis for the soils of the Piedmont. Fluviomarine material is transported material that has been reworked by stream and marine action and forms the basis for the soils of the Coastal Plain. Alluvium is material transported by water and deposited as unconsolidated deposits of sand, silt, and clay and large fragments of rock. It forms the basis for soils on terraces and bottomlands of both the Piedmont Plateau and Coastal Plain.

Residual material is generally west of the fall line in Caroline County. This material formed primarily from granite and gneiss. These rocks weather into parent material that is commonly low in bases and strongly acid. Properties of the residual parent material are directly related to the characteristics of the underlying bedrock. Appling, Cecil, and Wateree soils formed in residuum.

Fluviomarine material is along and east of the fall line in Caroline County. It consists of tranported and reworked sands, silts, and clays that are gravelly to extremely gravelly in places. The material is layered, and texture changes abruptly in many places in vertical or horizontal directions. Soil formed from fluviomarine material is commonly strongly acid or very strongly acid and low in bases. The texture of the soil reflects the textures of the layers from which it was formed. Kempsville, Nevarc, Remlik, Slagle, and Suffolk soils formed in fluviomarine material.

Alluvial parent material is of local origin along the smaller streams and drainageways and is of both local and general origin along the Rappahanock River. The material is on flood plains and terraces. The alluvium has a mixed lithology because of the wide variety of igneous and metamorphic rocks and fluviomarine deposits found in the uplands. Total thickness of the alluvium ranges from several feet along the drainageways and small streams to several tens of feet along the

Rappahanock River. Alluvium along the drainageways and small streams is commonly medium to coarse textured. Along the Rappahanock River, texture varies widely, ranging from fine textured slackwater deposits to coarse textured sand and gravel deposits. The soils that formed in alluvium are moderate in bases and are moderately acid to strongly acid. Chewacla, Riverview, Bibb, Chastain, and Wehadkee soils formed in recent alluvium on flood plains. Wickham and Altavista soils formed in ancient alluvium on terraces.

Topography

Topography, or relief, affects the formation of soils by influencing the rate of infiltration, the rate of surface runoff, soil drainage, geologic erosion, and soil temperature. It can alter the effects of other soil-forming factors to the extent that several different kinds of soil can form from the same parent material. Differences in topography can cause the same parent material to weather at different rates, thus affecting the impact of plants and animals on soil formation.

Caroline County is in an area of rolling topography, moderately incised by the major drainage patterns. A wide area of river terrace is present along the lower part of the Rappahanock River. Elevations in the area range from 15 feet along the Rappahanock River to about 350 feet in the western part of the city. Generally, the land surface slopes gently to the southeast, at an average rate of 20 feet to the mile.

Caroline County is drained by a number of short streams that empty into the Rappahanock River. The drainage pattern is, in general, dendritic, but it is irregularly branched. The general fluvial cycle is in a stage of late youth or early maturity.

The county generally consists of gently sloping to steep, intermediate to broad ridges and rises with slopes ranging from 0 to 15 percent. The gently sloping areas have a medium rate of runoff and a good rate of water infiltration. Soils in these areas include Appling, Cecil, and Kempsville. The steep areas, where slopes range from 15 to 50 percent, commonly have rapid rates of runoff and a poor rate of water infiltration. The steeper soils, such as Wateree, have thinner subsoils than the less sloping soils.

Soils on terraces range from well drained to poorly drained and commonly are on slopes of 0 to 6 percent. Drainage is commonly related to both the texture of the alluvium and its position on the landscape. Thus, soils that developed from fine textured slackwater deposits in low positions are often poorly drained. Roanoke and Tomotley soils are examples. Deposits of fine materials on the gently sloping high river terraces are typically moderately well drained or well drained. Wickham and Altavista soils are examples. Layers of contrasting materials in the alluvium cause fluctuating water tables and often result in moderately well drained or somewhat poorly drained soils. Slagle and Altavista soils are examples.

Climate

Climate affects the physical, chemical, and biological relationships in soils, primarily through the influence of precipitation and temperature. Water dissolves minerals, supports biological activity, and transports mineral and organic residue through the solum. Temperature determines the type of physical, chemical, and biological activity that takes place and the rate at which it occurs.

Caroline County has the rather humid, temperate climate typical of most coastal or near-coastal areas of the Middle Atlantic States. The average annual rainfall is about 43 inches, and the average air temperature is between 50 and 60 degrees F. Rainfall is well distributed throughout the year, but normally July and August are the months with the highest amount of rainfall.

The climate is fairly uniform throughout the county, and there are no significant differences in elevation. Thus, there are no obstructions to the movement of winds,

clouds, and rainstorms. Masses of air generally move through the county from the northwest, but they are warmed by air that moves in periodically from the south and southwest.

Because precipitation exceeds evapotranspiration, this humid, rather uniform climate has caused the soils to be strongly leached. Most of the soluble material that either was originally present or was released through weathering has been removed. Therefore, most of the soils are strongly acid and generally are low in plant nutrients.

Precipitation is mainly responsible for the subsoil that characterizes most soils in the county. In addition to leaching soluble material, water that percolates through the soil moves clay from the surface layer to a subsoil layer. Except for soils that formed in recent alluvium or sand, soils in the county have a subsoil that contains more clay than the surface layer.

Also influenced by climate is the formation of blocky structure in the subsoil of well developed soils. The development of peds (aggregates) in the subsoil is caused by changes in volume of the soil mass. These changes are primarily the result of alternating wet and dry periods and of alternating freezing and thawing periods.

Weathering of minerals is at a rate proportional to temperature and amount of moisture. Soil weathers more rapidly in tropical regions than in temperate regions and humid regions. In Caroline County, the soils are relatively low in weatherable minerals. They contain no free carbonates and most of the bases have been leached out. However, because many of the soils that formed in transported parent material had previously undergone one or more cycles of erosion, these materials may have been highly weathered and leached at the time they were deposited.

Living Organisms

Plants and animals are the main source of organic matter in soils. Organic matter decomposes and is incorporated into the soil by the action of microorganisms and earthworms and, to a lesser degree, by windthrown trees and burrowing animals.

Before settlement by humans, the native vegetation of the survey area was most important in the complex of living organisms that affected soil development. The first settlers found a dense forest that consisted mainly of hardwoods. Oaks were dominant in most parts of the area. Yellow-poplar, sweetgum, blackgum, holly, hickory, maple, dogwood, loblolly pine, and Virginia pine were also important, but there were probably few pure stands of pine before the area was settled. The fairly pure stands of pine that exist today are generally in areas that were once cleared and cultivated.

Most hardwoods use large amounts of calcium as well as other bases if they are available. Soils that are normally high in bases remain so under a cover of deciduous trees because, in large part, these bases are returned to the soil each year. When the leaves fall and decompose, the bases reenter the soil and are again used by plants.

The soils in Caroline County, however, have never been very high in bases; consequently, they are acid even under a cover of hardwoods. Soils that are strongly acid and low in fertility are better suited to pines than to most hardwoods. Pines do not require large amounts of calcium and other bases. Their needles do little to restore fertility to the soil.

As agriculture and urban growth developed in the survey area, humans became an important factor in the development of the soils. The clearing of forests, cultivation in some areas, introduction of new kinds of crops and other plants, and improvements in drainage affected development of the soils and will continue to affect their development in the future.

The most important changes brought about by humans include mixing of the upper horizons of the soil to form a plow layer; tilling sloping soils, which resulted in accelerated erosion; and liming and fertilizing that changed the content of plant nutrients, especially in the upper horizons.

Time

Time is needed for changes to take place in the parent material. Because of other soil-forming factors, however, soils that formed in the same type of parent material and for the same amount of time may be equally developed. Runoff and erosion, which hinder the development of well expressed soil horizons, are greater on the steeper slopes. Thus, soils on the steeper slopes generally are less developed than soils on the less steep slopes even though they formed in the same parent material. For example, the moderately deep Wateree soils on moderately steep and steep side slopes are less developed than the very deep Cecil soils on gently sloping summits and shoulders.

Soils that form in weather-resistant parent material do not develop as rapidly as soils that form in parent material that is less resistant to weathering. Soils on flood plains, such as Chewacla and Riverview soils, commonly have weakly defined layers because they are subject to the constant deposition of sediment.

Processes of Soil Horizon Differentiation

Several processes are involved in the formation of soil horizons. Among these are the accumulation of organic matter, the leaching of soluble salts, the reduction and transfer of iron, and the translocation of clay minerals. These processes occur continually and simultaneously. They have been taking place for thousands of years.

Organic matter accumulates as plant and animal material decomposes. It darkens the surface layer and helps to form the A horizon. Once organic matter is lost, it normally takes a long time to replace. The content of organic matter in the surface layer of the soils in Caroline County averages about 1.5 percent.

Soils that have distinct subsoil horizons were leached of some of the lime and soluble salts before the clay minerals moved downward. Some of the factors that affect this leaching are the kinds of salts originally present, the depth to which the soil solution percolates, and the texture of the soil profile.

In Caroline County, well drained and moderately well drained soils have a red to yellowish brown subsoil. These colors are caused mainly by thin coatings of iron oxide on sand and silt grains, but in some soils the colors are inherited from the materials in which the soils formed. The structure in these soils is weak to strong subangular blocky, and the subsoil contains more clay than the surface layer.

The reduction and transfer of iron, called gleying, is associated mainly with wet, poorly drained soils. Moderately well drained and somewhat poorly drained soils have red, yellowish red, and yellowish brown iron and manganese accumulations and gray iron and manganese depletions. This indicates the segregation of iron or manganese, or both, due to a fluctuating water table. In poorly drained soils, such as Roanoke soils, the subsoil and underlying material are gray. This indicates the reduction and transfer of iron or manganese, or both, in solution.

The translocation of clay minerals is an important process in the development of many soils in the survey area. As clay minerals are removed from the A horizon, they accumulate as clay films on the faces of peds, in pores, and in root channels in the B horizon.

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Glossary

Many of the terms relating to landforms, geology, and geomorphology are defined in more detail in the “National Soil Survey Handbook” (available in local offices of the Natural Resources Conservation Service or on the Internet).

ABC soil. A soil having an A, a B, and a C horizon.

AC soil. A soil having only an A and a C horizon. Commonly, such soil formed in recent alluvium or on steep, rocky slopes.

Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alluvium. Unconsolidated material, such as gravel, sand, silt, clay, and various mixtures of these, deposited on land by running water.

Alpha,alpha-dipyridyl. A compound that when dissolved in ammonium acetate is used to detect the presence of reduced iron (Fe II) in the soil. A positive reaction implies reducing conditions and the likely presence of redoximorphic features.

Animal unit month (AUM). The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

Aquic conditions. Current soil wetness characterized by saturation, reduction, and redoximorphic features.

Argillic horizon. A subsoil horizon characterized by an accumulation of illuvial clay.

Aspect. The direction toward which a slope faces. Also called slope aspect.

Association, soil. A group of soils or miscellaneous areas geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low	0 to 3
Low	3 to 6
Moderate	6 to 9
High	9 to 12
Very high	more than 12

Backslope. The position that forms the steepest and generally linear, middle portion of a hillslope. In profile, backslopes are commonly bounded by a convex shoulder above and a concave footslope below.

Backswamp. A flood-plain landform. Extensive, marshy or swampy, depressed areas of flood plains between natural levees and valley sides or terraces.

Basal area. The area of a cross section of a tree, generally referring to the section at

breast height and measured outside the bark. It is a measure of stand density, commonly expressed in square feet.

Base saturation. The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation-exchange capacity.

Base slope (geomorphology). A geomorphic component of hills consisting of the concave to linear (perpendicular to the contour) slope that, regardless of the lateral shape, forms an apron or wedge at the bottom of a hillside dominated by colluvium and slope-wash sediments (for example, slope alluvium).

Bedding system. A drainage system made by plowing, grading, or otherwise shaping the surface of a flat field. It consists of a series of low ridges separated by shallow, parallel dead furrows.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bench terrace. A raised, level or nearly level strip of earth constructed on or nearly on a contour, supported by a barrier of rocks or similar material, and designed to make the soil suitable for tillage and to prevent accelerated erosion.

Bisequum. Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.

Bottom land. An informal term loosely applied to various portions of a flood plain.

Breaks. A landscape or tract of steep, rough or broken land dissected by ravines and gullies and marking a sudden change in topography.

Breast height. An average height of 4.5 feet above the ground surface; the point on a tree where diameter measurements are ordinarily taken.

Brush management. Use of mechanical, chemical, or biological methods to make conditions favorable for reseeding or to reduce or eliminate competition from woody vegetation and thus allow understory grasses and forbs to recover. Brush management increases forage production and thus reduces the hazard of erosion. It can improve the habitat for some species of wildlife.

Canopy. The leafy crown of trees or shrubs. (See Crown.)

Capillary water. Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.

Catena. A sequence, or "chain," of soils on a landscape that formed in similar kinds of parent material and under similar climatic conditions but that have different characteristics as a result of differences in relief and drainage.

Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity. The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

Chemical treatment. Control of unwanted vegetation through the use of chemicals.

Chiseling. Tillage with an implement having one or more soil-penetrating points that shatter or loosen hard, compacted layers to a depth below normal plow depth.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay depletions. See Redoximorphic features.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Claypan. A dense, compact, slowly permeable subsoil layer that contains much more clay than the overlying materials, from which it is separated by a sharply defined boundary. A claypan is commonly hard when dry and plastic and sticky when wet.

Climax plant community. The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.

Concretions. See Redoximorphic features.

Coarse textured soil. Sand or loamy sand.

Cobble (or cobblestone). A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.

Cobbly soil material. Material that has 15 to 35 percent, by volume, rounded or partially rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in diameter. Very cobbly soil material has 35 to 60 percent of these rock fragments, and extremely cobbly soil material has more than 60 percent.

COLE (coefficient of linear extensibility). See Linear extensibility.

Colluvium. Unconsolidated, unsorted earth material being transported or deposited on side slopes and/or at the base of slopes by mass movement (e.g., direct gravitational action) and by local, unconcentrated runoff.

Complex slope. Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.

Complex, soil. A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.

Concretions. Cemented bodies with crude internal symmetry organized around a point, a line, or a plane. They typically take the form of concentric layers visible to the naked eye. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up concretions. If formed in place, concretions of iron oxide or manganese oxide are generally considered a type of redoximorphic concentration.

Conservation cropping system. Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and practices more than offset the effects of the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.

Conservation tillage. A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

Consistence, soil. Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration; plasticity, toughness, and stickiness of puddled soil material; and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the “Soil Survey Manual.”

Contour stripcropping. Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Corrosion (geomorphology). A process of erosion whereby rocks and soil are removed or worn away by natural chemical processes, especially by the solvent action of running water, but also by other reactions, such as hydrolysis, hydration, carbonation, and oxidation.

Corrosion (soil survey interpretations). Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Crop residue management. Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.

Cropping system. Growing crops according to a planned system of rotation and management practices.

Cross-slope farming. Deliberately conducting farming operations on sloping farmland in such a way that tillage is across the general slope.

Crown. The upper part of a tree or shrub, including the living branches and their foliage.

Crusts, soil. Relatively thin, somewhat continuous layers of the soil surface that often restrict water movement, air entry, and seedling emergence from the soil. They generally are less than 2 inches thick and are massive.

Culmination of the mean annual increment (CMAI). The average annual increase per acre in the volume of a stand. Computed by dividing the total volume of the stand by its age. As the stand increases in age, the mean annual increment continues to increase until mortality begins to reduce the rate of increase. The point where the stand reaches its maximum annual rate of growth is called the culmination of the mean annual increment.

Cutbanks cave (in tables). The walls of excavations tend to cave in or slough.

Decreasers. The most heavily grazed climax range plants. Because they are the most palatable, they are the first to be destroyed by overgrazing.

Deferred grazing. Postponing grazing or resting grazing land for a prescribed period.

Dense layer (in tables). A very firm, massive layer that has a bulk density of more than 1.8 grams per cubic centimeter. Such a layer affects the ease of digging and can affect filling and compacting.

Depth, soil. Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Divided-slope farming. A form of field stripcropping in which crops are grown in a systematic arrangement of two strips, or bands, across the slope to reduce the hazard of water erosion. One strip is in a close-growing crop that provides protection from erosion, and the other strip is in a crop that provides less protection from erosion. This practice is used where slopes are not long enough to permit a full stripcropping pattern to be used.

Drainage class (natural). Refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized—*excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained,* and *very poorly drained*. These classes are defined in the “Soil Survey Manual.”

Drainage, surface. Runoff, or surface flow of water, from an area.

Drainageway. A general term for a course or channel along which water moves in draining an area. A term restricted to relatively small, linear depressions that at some time move concentrated water and either do not have a defined channel or have only a small defined channel.

Draw. A small stream valley that generally is shallower and more open than a ravine or

gulch and that has a broader bottom. The present stream channel may appear inadequate to have cut the drainageway that it occupies.

Ecological site. An area where climate, soil, and relief are sufficiently uniform to produce a distinct natural plant community. An ecological site is the product of all the environmental factors responsible for its development. It is typified by an association of species that differ from those on other ecological sites in kind and/or proportion of species or in total production.

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Endosaturation. A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.

Ephemeral stream. A stream, or reach of a stream, that flows only in direct response to precipitation. It receives no long-continued supply from melting snow or other source, and its channel is above the water table at all times.

Episaturation. A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

Erosion pavement. A surficial lag concentration or layer of gravel and other rock fragments that remains on the soil surface after sheet or rill erosion or wind has removed the finer soil particles and that tends to protect the underlying soil from further erosion.

Erosion surface. A land surface shaped by the action of erosion, especially by running water.

Escarpment. A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. Most commonly applied to cliffs produced by differential erosion. Synonym: scarp.

Fallow. Cropland left idle in order to restore productivity through accumulation of moisture. Summer fallow is common in regions of limited rainfall where cereal grain is grown. The soil is tilled for at least one growing season for weed control and decomposition of plant residue.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Fibric soil material (peat). The least decomposed of all organic soil material. Peat contains a large amount of well preserved fiber that is readily identifiable according to botanical origin. Peat has the lowest bulk density and the highest water content at saturation of all organic soil material.

Field moisture capacity. The moisture content of a soil, expressed as a percentage of the ovendry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity, normal moisture capacity,* or *capillary capacity*.

Fill slope. A sloping surface consisting of excavated soil material from a road cut. It commonly is on the downhill side of the road.

Fine textured soil. Sandy clay, silty clay, or clay.

Firebreak. An area cleared of flammable material to stop or help control creeping or running fires. It also serves as a line from which to work and to facilitate the movement of firefighters and equipment. Designated roads also serve as firebreaks.

First bottom. An obsolete, informal term loosely applied to the lowest flood-plain steps that are subject to regular flooding.

Flooding frequency class. The number of times flooding occurs over a period of time. The classes of flooding are defined as follows:

None.—There is no reasonable possibility of flooding; there is a near 0 percent chance of flooding in any year or flooding occurs less than 1 time in 500 years.

Very rare.—Flooding is very unlikely but possible under extremely unusual weather conditions; there is less than 1 percent chance of flooding in any year or flooding occurs less than 1 time in 100 years but at least 1 time in 500 years.

Rare.—Flooding is unlikely but possible under unusual weather conditions; there is a 1 to 5 percent chance of flooding in any year or flooding occurs nearly 1 to 5 times in 100 years.

Occasional.—Flooding is expected infrequently under usual weather conditions; there is a 5 to 50 percent chance of flooding in any year or flooding occurs more than 5 to 50 times in 100 years.

Frequent.—Flooding is likely to occur often under usual weather conditions; there is a more than a 50 percent chance of flooding in any year or flooding occurs more than 50 times in 100 years, but there is a less than a 50 percent chance of flooding in all months in any year.

Very frequent.—Flooding is likely to occur very often under usual weather conditions; there is a more than a 50 percent chance of flooding in all months of any year.

Flood plain. The nearly level plain that borders a stream and is subject to flooding unless protected artificially.

Flood-plain landforms. A variety of constructional and erosional features produced by stream channel migration and flooding. Examples include backswamps, flood-plain splays, meanders, meander belts, meander scrolls, oxbow lakes, and natural levees.

Flood-plain splay. A fan-shaped deposit or other outspread deposit formed where an overloaded stream breaks through a levee (natural or artificial) and deposits its material (commonly coarse grained) on the flood plain.

Flood-plain step. An essentially flat, terrace-like alluvial surface within a valley that is frequently covered by floodwater from the present stream; any approximately horizontal surface still actively modified by fluvial scour and/or deposition. May occur individually or as a series of steps.

Fluvial. Of or pertaining to rivers or streams; produced by stream or river action.

Footslope. The concave surface at the base of a hillslope. A footslope is a transition zone between upslope sites of erosion and transport (shoulders and backslopes) and downslope sites of deposition (toeslopes).

Forb. Any herbaceous plant not a grass or a sedge.

Forest cover. All trees and other woody plants (underbrush) covering the ground in a forest.

Forest type. A stand of trees similar in composition and development because of given physical and biological factors by which it may be differentiated from other stands.

Fragipan. A loamy, brittle subsurface horizon low in porosity and content of organic matter and low or moderate in clay but high in silt or very fine sand. A fragipan appears cemented and restricts roots. When dry, it is hard or very hard and has a

higher bulk density than the horizon or horizons above. When moist, it tends to rupture suddenly under pressure rather than to deform slowly.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.

Graded stripcropping. Growing crops in strips that grade toward a protected waterway.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gravel. Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

Gravelly soil material. Material that has 15 to 35 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.

Green manure crop (agronomy). A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.

Ground water. Water filling all the unblocked pores of the material below the water table.

Gully. A small channel with steep sides caused by erosion and cut in unconsolidated materials by concentrated but intermittent flow of water. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

Hard bedrock. Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.

Hard to reclaim (in tables). Reclamation is difficult after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

Hardpan. A hardened or cemented soil horizon, or layer. The soil material is sandy, loamy, or clayey and is cemented by iron oxide, silica, calcium carbonate, or other substance.

Head slope (geomorphology). A geomorphic component of hills consisting of a laterally concave area of a hillside, especially at the head of a drainageway. The overland waterflow is converging.

Hemic soil material (mucky peat). Organic soil material intermediate in degree of decomposition between the less decomposed fibric material and the more decomposed sapric material.

High-residue crops. Such crops as small grain and corn used for grain. If properly managed, residue from these crops can be used to control erosion until the next crop in the rotation is established. These crops return large amounts of organic matter to the soil.

Hill. A generic term for an elevated area of the land surface, rising as much as 1,000 feet above surrounding lowlands, commonly of limited summit area and having a well defined outline. Slopes are generally more than 15 percent. The distinction between a hill and a mountain is arbitrary and may depend on local usage.

Hillslope. A generic term for the steeper part of a hill between its summit and the drainage line, valley flat, or depression floor at the base of a hill.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An

explanation of the subdivisions is given in the “Soil Survey Manual.” The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

E horizon.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

Cr horizon.—Soft, consolidated bedrock beneath the soil.

R layer.—Consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

Humus. The well decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups. Refers to soils grouped according to their runoff potential. The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties are depth to a seasonal high water table, the infiltration rate and permeability after prolonged wetting, and depth to a very slowly permeable layer. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff.

Igneous rock. Rock that was formed by cooling and solidification of magma and that has not been changed appreciably by weathering since its formation. Major varieties include plutonic and volcanic rock (e.g., andesite, basalt, and granite).

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Impervious soil. A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

Increasers. Species in the climax vegetation that increase in amount as the more desirable plants are reduced by close grazing. Increasers commonly are the shorter plants and the less palatable to livestock.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration capacity. The maximum rate at which water can infiltrate into a soil under a given set of conditions.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Intake rate. The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net

irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

Less than 0.2	very low
0.2 to 0.4	low
0.4 to 0.75	moderately low
0.75 to 1.25	moderate
1.25 to 1.75	moderately high
1.75 to 2.5	high
More than 2.5	very high

Interfluve. A landform composed of the relatively undissected upland or ridge between two adjacent valleys containing streams flowing in the same general direction. An elevated area between two drainageways that sheds water to those drainageways.

Interfluve (geomorphology). A geomorphic component of hills consisting of the uppermost, comparatively level or gently sloping area of a hill; shoulders of backwearing hillslopes can narrow the upland or can merge, resulting in a strongly convex shape.

Intermittent stream. A stream, or reach of a stream, that does not flow year-round but that is commonly dry for 3 or more months out of 12 and whose channel is generally below the local water table. It flows only during wet periods or when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

Invaders. On range, plants that encroach into an area and grow after the climax vegetation has been reduced by grazing. Generally, plants invade following disturbance of the surface.

Iron depletions. See Redoximorphic features.

Irrigation. Application of water to soils to assist in production of crops. Methods of irrigation are:

Basin.—Water is applied rapidly to nearly level plains surrounded by levees or dikes.

Border.—Water is applied at the upper end of a strip in which the lateral flow of water is controlled by small earth ridges called border dikes, or borders.

Controlled flooding.—Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.

Corrugation.—Water is applied to small, closely spaced furrows or ditches in fields of close-growing crops or in orchards so that it flows in only one direction.

Drip (or trickle).—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

Furrow.—Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.

Sprinkler.—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

Subirrigation.—Water is applied in open ditches or tile lines until the water table is raised enough to wet the soil.

Wild flooding.—Water, released at high points, is allowed to flow onto an area without controlled distribution.

Knoll. A small, low, rounded hill rising above adjacent landforms.

K_{sat}. Saturated hydraulic conductivity. (See Permeability.)

Landslide. A general, encompassing term for most types of mass movement landforms and processes involving the downslope transport and outward deposition of soil and rock materials caused by gravitational forces; the movement

may or may not involve saturated materials. The speed and distance of movement, as well as the amount of soil and rock material, vary greatly.

Large stones (in tables). Rock fragments 3 inches (7.6 centimeters) or more across. Large stones adversely affect the specified use of the soil.

Leaching. The removal of soluble material from soil or other material by percolating water.

Linear extensibility. Refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. Linear extensibility is used to determine the shrink-swell potential of soils. It is an expression of the volume change between the water content of the clod at $^1/_3$- or $^1/_{10}$-bar tension (33kPa or 10kPa tension) and oven dryness. Volume change is influenced by the amount and type of clay minerals in the soil. The volume change is the percent change for the whole soil. If it is expressed as a fraction, the resulting value is COLE, coefficient of linear extensibility.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Low strength. The soil is not strong enough to support loads.

Low-residue crops. Such crops as corn used for silage, peas, beans, and potatoes. Residue from these crops is not adequate to control erosion until the next crop in the rotation is established. These crops return little organic matter to the soil.

Mass movement. A generic term for the dislodgment and downslope transport of soil and rock material as a unit under direct gravitational stress.

Masses. See Redoximorphic features.

Meander belt. The zone within which migration of a meandering channel occurs; the flood-plain area included between two imaginary lines drawn tangential to the outer bends of active channel loops.

Meander scar. A crescent-shaped, concave or linear mark on the face of a bluff or valley wall, produced by the lateral erosion of a meandering stream that impinged upon and undercut the bluff.

Meander scroll. One of a series of long, parallel, close-fitting, crescent-shaped ridges and troughs formed along the inner bank of a stream meander as the channel migrated laterally down-valley and toward the outer bank.

Mechanical treatment. Use of mechanical equipment for seeding, brush management, and other management practices.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

Metamorphic rock. Rock of any origin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement at depth in the earth's crust. Nearly all such rocks are crystalline.

Mine spoil. An accumulation of displaced earthy material, rock, or other waste material removed during mining or excavation. Also called earthy fill.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Minimum tillage. Only the tillage essential to crop production and prevention of soil damage.

Miscellaneous area. A kind of map unit that has little or no natural soil and supports little or no vegetation.

Moderately coarse textured soil. Coarse sandy loam, sandy loam, or fine sandy loam.

Moderately fine textured soil. Clay loam, sandy clay loam, or silty clay loam.

Mollic epipedon. A thick, dark, humus-rich surface horizon (or horizons) that has high base saturation and pedogenic soil structure. It may include the upper part of the subsoil.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Descriptive terms are as follows: abundance—*few, common,* and *many;* size—*fine, medium,* and *coarse;* and contrast—*faint, distinct,* and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium,* from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse,* more than 15 millimeters (about 0.6 inch).

Mountain. A generic term for an elevated area of the land surface, rising more than 1,000 feet (300 meters) above surrounding lowlands, commonly of restricted summit area (relative to a plateau) and generally having steep sides. A mountain can occur as a single, isolated mass or in a group forming a chain or range. Mountains are formed primarily by tectonic activity and/or volcanic action but can also be formed by differential erosion.

Mudstone. A blocky or massive, fine-grained sedimentary rock in which the proportions of clay and silt are approximately equal. Also, a general term for such material as clay, silt, claystone, siltstone, shale, and argillite and that should be used only when the amounts of clay and silt are not known or cannot be precisely identified.

Munsell notation. A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

Neutral soil. A soil having a pH value of 6.6 to 7.3. (See Reaction, soil.)

Nodules. See Redoximorphic features.

Nose slope (geomorphology). A geomorphic component of hills consisting of the projecting end (laterally convex area) of a hillside. The overland waterflow is predominantly divergent. Nose slopes consist dominantly of colluvium and slope-wash sediments (for example, slope alluvium).

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

n-value. The relationship between the percentage of water under field conditions and the percentages of inorganic clay and of humus.

Organic matter. Plant and animal residue in the soil in various stages of decomposition. The content of organic matter in the surface layer is described as follows:

Very low	less than 0.5 percent
Low	0.5 to 1.0 percent
Moderately low	1.0 to 2.0 percent
Moderate	2.0 to 4.0 percent
High	4.0 to 8.0 percent
Very high	more than 8.0 percent

Paleoterrace. An erosional remnant of a terrace that retains the surface form and alluvial deposits of its origin but was not emplaced by, and commonly does not grade to, a present-day stream or drainage network.

Pan. A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan, fragipan, claypan, plowpan,* and *traffic pan*.

Parent material. The unconsolidated organic and mineral material in which soil forms.

Peat. Unconsolidated material, largely undecomposed organic matter, that has accumulated under excess moisture. (See Fibric soil material.)

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedisediment. A layer of sediment, eroded from the shoulder and backslope of an erosional slope, that lies on and is being (or was) transported across a gently sloping erosional surface at the foot of a receding hill or mountain slope.

Pedon. The smallest volume that can be called “a soil.” A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The movement of water through the soil.

Permeability. The quality of the soil that enables water or air to move downward through the profile. The rate at which a saturated soil transmits water is accepted as a measure of this quality. In soil physics, the rate is referred to as “saturated hydraulic conductivity,” which is defined in the “Soil Survey Manual.” In line with conventional usage in the engineering profession and with traditional usage in published soil surveys, this rate of flow continues to be expressed as “permeability.” Terms describing permeability, measured in inches per hour, are as follows:

Impermeable	less than 0.0015 inch
Very slow	0.0015 to 0.06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Phase, soil. A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.

Piping (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

Pitting (in tables). Pits caused by melting around ice. They form on the soil after plant cover is removed.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plateau (geomorphology). A comparatively flat area of great extent and elevation; specifically, an extensive land region that is considerably elevated (more than 100 meters) above the adjacent lower-lying terrain, is commonly limited on at least one side by an abrupt descent, and has a flat or nearly level surface. A comparatively large part of a plateau surface is near summit level.

Plowpan. A compacted layer formed in the soil directly below the plowed layer.

Ponding. Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

Poorly graded. Refers to a coarse-grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Pore linings. See Redoximorphic features.

Potential native plant community. See Climax plant community.

Potential rooting depth (effective rooting depth). Depth to which roots could penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.

Prescribed burning. Deliberately burning an area for specific management purposes,

under the appropriate conditions of weather and soil moisture and at the proper time of day.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Proper grazing use. Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.

Rangeland. Land on which the potential natural vegetation is predominantly grasses, grasslike plants, forbs, or shrubs suitable for grazing or browsing. It includes natural grasslands, savannas, many wetlands, some deserts, tundras, and areas that support certain forb and shrub communities.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed as pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid	less than 3.5
Extremely acid	3.5 to 4.4
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Moderately acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Slightly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Red beds. Sedimentary strata that are mainly red and are made up largely of sandstone and shale.

Redoximorphic concentrations. See Redoximorphic features.

Redoximorphic depletions. See Redoximorphic features.

Redoximorphic features. Redoximorphic features are associated with wetness and result from alternating periods of reduction and oxidation of iron and manganese compounds in the soil. Reduction occurs during saturation with water, and oxidation occurs when the soil is not saturated. Characteristic color patterns are created by these processes. The reduced iron and manganese ions may be removed from a soil if vertical or lateral fluxes of water occur, in which case there is no iron or manganese precipitation in that soil. Wherever the iron and manganese are oxidized and precipitated, they form either soft masses or hard concretions or nodules. Movement of iron and manganese as a result of redoximorphic processes in a soil may result in redoximorphic features that are defined as follows:

1. Redoximorphic concentrations.—These are zones of apparent accumulation of iron-manganese oxides, including:

   A. Nodules and concretions, which are cemented bodies that can be removed from the soil intact. Concretions are distinguished from nodules on the basis of internal organization. A concretion typically has concentric layers that are visible to the naked eye. Nodules do not have visible organized internal structure; *and*

   B. Masses, which are noncemented concentrations of substances within the soil matrix; *and*

C. Pore linings, i.e., zones of accumulation along pores that may be either coatings on pore surfaces or impregnations from the matrix adjacent to the pores.

2. Redoximorphic depletions.—These are zones of low chroma (chromas less than those in the matrix) where either iron-manganese oxides alone or both iron-manganese oxides and clay have been stripped out, including:

A. Iron depletions, i.e., zones that contain low amounts of iron and manganese oxides but have a clay content similar to that of the adjacent matrix; *and*

B. Clay depletions, i.e., zones that contain low amounts of iron, manganese, and clay (often referred to as silt coatings or skeletans).

3. Reduced matrix.—This is a soil matrix that has low chroma *in situ* but undergoes a change in hue or chroma within 30 minutes after the soil material has been exposed to air.

Reduced matrix. See Redoximorphic features.

Regolith. All unconsolidated earth materials above the solid bedrock. It includes material weathered in place from all kinds of bedrock and alluvial, glacial, eolian, lacustrine, and pyroclastic deposits.

Relief. The relative difference in elevation between the upland summits and the lowlands or valleys of a given region.

Residuum (residual soil material). Unconsolidated, weathered or partly weathered mineral material that accumulated as bedrock disintegrated in place.

Rill. A very small, steep-sided channel resulting from erosion and cut in unconsolidated materials by concentrated but intermittent flow of water. A rill generally is not an obstacle to wheeled vehicles and is shallow enough to be smoothed over by ordinary tillage.

Riser. The vertical or steep side slope (e.g., escarpment) of terraces, flood-plain steps, or other stepped landforms; commonly a recurring part of a series of natural, steplike landforms, such as successive stream terraces.

Road cut. A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sandstone. Sedimentary rock containing dominantly sand-sized particles.

Saturated hydraulic conductivity (K_{sat}). The amount of water that would move vertically through a unit area of saturated soil in unit time under unit hydraulic gradient. Terms describing saturated hydraulic conductivity, measured in inches per hour (micrometers per second), are as follows:

Very low	0.0 to 0.001417 (0.0 to 0.01)
Low	0.001417 to 0.01417 (0.01 to 0.1)
Moderately low	0.01417 to 0.1417 (0.1 to 1.0)
Moderately high	0.1417 to 1.417 (1.0 to 10)
High	1.417 to 14.7 (10 to 100)
Very high	more than 14.7 (more than 100)

Saturation. Wetness characterized by zero or positive pressure of the soil water.

Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.

Scarification. The act of abrading, scratching, loosening, crushing, or modifying the surface to increase water absorption or to provide a more tillable soil.

Sedimentary rock. A consolidated deposit of clastic particles, chemical precipitates, or organic remains accumulated at or near the surface of the earth under normal low temperature and pressure conditions. Sedimentary rocks include consolidated equivalents of alluvium, colluvium, drift, and eolian, lacustrine, and marine deposits. Examples are sandstone, siltstone, mudstone, claystone, shale, conglomerate, limestone, dolomite, and coal.

Sequum. A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

Series, soil. A group of soils that have profiles that are almost alike. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Shale. Sedimentary rock that formed by the hardening of a deposit of clay, silty clay, or silty clay loam and that has a tendency to split into thin layers.

Sheet erosion. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

Shoulder. The convex, erosional surface near the top of a hillslope. A shoulder is a transition from summit to backslope.

Shrink-swell (in tables). The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Side slope (geomorphology). A geomorphic component of hills consisting of a laterally planar area of a hillside. The overland waterflow is predominantly parallel. Side slopes are dominantly colluvium and slope-wash sediments.

Silica. A combination of silicon and oxygen. The mineral form is called quartz.

Silica-sesquioxide ratio. The ratio of the number of molecules of silica to the number of molecules of alumina and iron oxide. The more highly weathered soils or their clay fractions in warm-temperate, humid regions, and especially those in the tropics, generally have a low ratio.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Siltstone. An indurated silt having the texture and composition of shale but lacking its fine lamination or fissility; a massive mudstone in which silt predominates over clay.

Similar soils. Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

Sinkhole. A closed, circular or elliptical depression, commonly funnel shaped, characterized by subsurface drainage and formed either by dissolution of the surface of underlying bedrock (e.g., limestone, gypsum, or salt) or by collapse of underlying caves within bedrock. Complexes of sinkholes in carbonate-rock terrain are the main components of karst topography.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.

Slickensides (pedogenic). Grooved, striated, and/or glossy (shiny) slip faces on structural peds, such as wedges; produced by shrink-swell processes, most commonly in soils that have a high content of expansive clays.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is

the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance. In this survey, classes for slopes are as follows:

Nearly level	0 to 2 percent
Gently sloping	2 to 6 percent
Strongly sloping	6 to 10 percent
Moderately steep	10 to 15 percent
Steep	15 to 25 percent
Very steep	25 percent and higher

Slope alluvium. Sediment gradually transported down the slopes of mountains or hills primarily by nonchannel alluvial processes (i.e., slope-wash processes) and characterized by particle sorting. Lateral particle sorting is evident on long slopes. In a profile sequence, sediments may be distinguished by differences in size and/or specific gravity of rock fragments and may be separated by stone lines. Burnished peds and sorting of rounded or subrounded pebbles or cobbles distinguish these materials from unsorted colluvial deposits.

Slow refill (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

Sodium adsorption ratio (SAR). A measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration.

Soft bedrock. Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief and by the passage of time.

Soil separates. Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. The living roots and plant and animal activities are largely confined to the solum.

Stone line. In a vertical cross section, a line formed by scattered fragments or a discrete layer of angular and subangular rock fragments (commonly a gravel- or cobble-sized lag concentration) that formerly was draped across a topographic surface and was later buried by additional sediments. A stone line generally caps material that was subject to weathering, soil formation, and erosion before burial. Many stone lines seem to be buried erosion pavements, originally formed by sheet and rill erosion across the land surface.

Stones. Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.

Stony. Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Stream terrace. One of a series of platforms in a stream valley, flanking and more or less parallel to the stream channel, originally formed near the level of the stream; represents the remnants of an abandoned flood plain, stream bed, or valley floor produced during a former state of fluvial erosion or deposition.

Stripcropping. Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to wind erosion and water erosion.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grained* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Stubble mulch. Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind erosion and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsoiling. Tilling a soil below normal plow depth, ordinarily to shatter a hardpan or claypan.

Substratum. The part of the soil below the solum.

Subsurface layer. Any surface soil horizon (A, E, AB, or EB) below the surface layer.

Summer fallow. The tillage of uncropped land during the summer to control weeds and allow storage of moisture in the soil for the growth of a later crop. A practice common in semiarid regions, where annual precipitation is not enough to produce a crop every year. Summer fallow is frequently practiced before planting winter grain.

Summit. The topographically highest position of a hillslope. It has a nearly level (planar or only slightly convex) surface.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the “plow layer,” or the “Ap horizon.”

Surface soil. The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.

Taxadjuncts. Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior. Soils are recognized as taxadjuncts only when one or more of their characteristics are slightly outside the range defined for the family of the series for which the soils are named.

Terrace (conservation). An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field generally is built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace (geomorphology). A steplike surface, bordering a valley floor or shoreline, that represents the former position of a flood plain, lake, or seashore. The term is usually applied both to the relatively flat summit surface (tread) that was cut or built by stream or wave action and to the steeper descending slope (scarp or riser) that has graded to a lower base level of erosion. A terrace can be subdivided as follows:

Low stream terrace. A terrace that is susceptible to flooding.
High stream terrace. A terrace that is not susceptible to flooding.

Terracettes. Small, irregular steplike forms on steep hillslopes, especially in pasture, formed by creep or erosion of surficial materials that may be induced or enhanced by trampling of livestock, such as sheep or cattle.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying “coarse,” “fine,” or “very fine.”

Thin layer (in tables). Otherwise suitable soil material that is too thin for the specified use.

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Toeslope. The gently inclined surface at the base of a hillslope. Toeslopes in profile are commonly gentle and linear and are constructional surfaces forming the lower part of a hillslope continuum that grades to valley or closed-depression floors.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Trace elements. Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, in soils in extremely small amounts. They are essential to plant growth.

Tread. The flat to gently sloping, topmost, laterally extensive slope of terraces, flood-plain steps, or other stepped landforms; commonly a recurring part of a series of natural steplike landforms, such as successive stream terraces.

Upland. An informal, general term for the higher ground of a region, in contrast with a low-lying adjacent area, such as a valley or plain, or for land at a higher elevation than the flood plain or low stream terrace; land above the footslope zone of the hillslope continuum.

Variegation. Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.

Water bars. Smooth, shallow ditches or depressional areas that are excavated at an angle across a sloping road. They are used to reduce the downward velocity of water and divert it off and away from the road surface. Water bars can easily be driven over if constructed properly.

Weathering. All physical disintegration, chemical decomposition, and biologically induced changes in rocks or other deposits at or near the earth’s surface by atmospheric or biologic agents or by circulating surface waters but involving essentially no transport of the altered material.

Well graded. Refers to soil material consisting of coarse-grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

Wilting point (or permanent wilting point). The moisture content of soil, on an ovendry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

Windthrow. The uprooting and tipping over of trees by the wind.

Tables

Table 1.—Temperature and Precipitation

(Recorded in the period 1961-90 at Corbin, Virginia)

Month	Temperature						Precipitation				
				2 years in 10 will have--				2 years in 10 will have--			
	Average daily maximum	Average daily minimum	Average daily	Maximum temp. higher than--	Minimum temp. lower than--	Average number of growing degree days*	Average	Less than--	More than--	Average number of days with 0.10 inch or more	Average snow-fall
	°F	°F	°F	°F	°F	Units	In	In	In		In
January--	43.0	22.9	32.9	70	-3	7	3.17	1.62	4.53	6	5.7
February-	46.2	25.5	35.8	74	4	16	3.05	1.44	4.43	6	5.1
March----	56.3	34.1	45.2	83	14	69	3.68	2.27	4.96	7	2.5
April----	66.2	42.3	54.2	89	24	183	3.13	1.65	4.43	6	0.2
May------	75.0	52.1	63.5	91	31	423	3.94	2.45	5.28	7	0.0
June-----	82.7	60.8	71.7	95	42	651	3.77	2.26	5.13	6	0.0
July-----	86.6	65.1	75.9	98	49	802	4.00	2.56	5.31	6	0.0
August---	85.5	64.3	74.9	97	47	772	3.97	1.92	5.75	5	0.0
September	79.3	57.2	68.2	95	36	547	3.48	1.56	5.13	5	0.0
October--	68.6	44.9	56.8	87	25	244	3.66	1.30	5.61	5	0.0
November-	58.8	36.3	47.6	80	16	84	3.41	1.59	4.98	5	0.6
December-	47.4	27.6	37.5	73	4	20	3.39	1.41	5.07	5	2.9
Yearly:											
Average	66.3	44.4	55.4	---	---	---	---	---	---	---	---
Extreme	104	-7	---	99	-4	---	---	---	---	---	---
Total--	---	---	---	---	---	3,818	42.67	36.77	48.36	69	17.0

* A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (50 degrees F).

Table 2.—Freeze Dates in Spring and Fall

(Recorded in the period 1961-90 at Corbin, Virginia)

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	Apr. 7	Apr. 21	May 7
2 years in 10 later than--	Apr. 2	Apr. 16	May 2
5 years in 10 later than--	Mar. 24	Apr. 7	Apr. 23
First freezing temperature in fall:			
1 year in 10 earlier than--	Oct. 26	Oct. 12	Oct. 2
2 years in 10 earlier than--	Nov. 2	Oct. 18	Oct. 7
5 years in 10 earlier than-	Nov. 14	Oct. 31	Oct. 17

Table 3.—Growing Season

(Recorded in the period 1961-90 at Corbin, Virginia)

Probability	Daily minimum temperature during growing season		
	Higher than 24 °F	Higher than 28 °F	Higher than 32 °F
	Days	Days	Days
9 years in 10	209	179	155
8 years in 10	218	188	162
5 years in 10	234	206	176
2 years in 10	251	223	190
1 year in 10	260	233	197

Table 4.—Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Acres	Percent
1A	Altavista fine sandy loam, 0 to 2 percent slopes, very rarely flooded	7,733	2.2
1B	Altavista fine sandy loam, 2 to 6 percent slopes, very rarely flooded	8,488	2.5
2B	Appling sandy loam, 2 to 7 percent slopes	5,078	1.5
2C	Appling sandy loam, 7 to 15 percent slopes	6,107	1.8
3A	Bama sandy loam, 0 to 2 percent slopes	373	0.1
3B	Bama sandy loam, 2 to 6 percent slopes	2,073	0.6
4A	Bibb-Chastain complex, 0 to 2 percent slopes, frequently flooded	12,466	3.6
5B	Bojac sandy loam, 0 to 6 percent slopes, very rarely flooded	6,282	1.8
6B	Cecil sandy loam, 2 to 7 percent slopes	2,906	0.8
7A	Chastain loam, 0 to 2 percent slopes, ponded	4,830	1.4
8A	Chewacla silt loam, 0 to 2 percent slopes, occasionally flooded	4,553	1.3
9C	Helena-Appling complex, 2 to 15 percent slopes	2,947	0.9
10E	Kempsville-Emporia-Remlik complex, 15 to 50 percent slopes	63,374	18.4
11A	Kempsville-Emporia complex, 0 to 2 percent slopes	3,757	1.1
11B	Kempsville-Emporia complex, 2 to 6 percent slopes	74,462	21.6
11C	Kempsville-Emporia complex, 6 to 10 percent slopes	22,141	6.4
12A	Myatt-Slagle complex, 0 to 2 percent slopes	1,934	0.6
13E	Nevarc sandy loam, 15 to 50 percent slopes	6,322	1.8
14	Pits, gravel, 0 to 3 percent slopes	412	0.1
15A	Rappahannock muck, 0 to 1 percent slopes, frequently flooded	638	0.2
16B	Remlik loamy sand, 2 to 6 percent slopes	347	0.1
16C	Remlik loamy sand, 6 to 15 percent slopes	517	0.1
16E	Remlik loamy sand, 15 to 50 percent slopes	1,426	0.4
17D	Rion sandy loam, 15 to 25 percent slopes	1,157	0.3
18A	Riverview silt loam, 0 to 2 percent slopes, occasionally flooded	799	0.2
19A	Roanoke loam, 0 to 2 percent slopes, ponded	665	0.2
20B	Rumford loamy sand, 0 to 6 percent slopes	2,443	0.7
20C	Rumford loamy sand, 6 to 10 percent slopes	1,070	0.3
20D	Rumford loamy sand, 10 to 15 percent slopes	583	0.2
21C	Slagle-Kempsville complex, 2 to 15 percent slopes	44,235	12.8
22A	Slagle fine sandy loam, 0 to 2 percent slopes	6,162	1.8
22B	Slagle fine sandy loam, 2 to 6 percent slopes	11,667	3.4
23A	State fine sandy loam, 0 to 2 percent slopes, very rarely flooded	2,790	0.8
23B	State fine sandy loam, 2 to 6 percent slopes, very rarely flooded	2,150	0.6
23C	State fine sandy loam, 6 to 10 percent slopes, very rarely flooded	336	*
24A	Suffolk fine sandy loam, 0 to 2 percent slopes	329	*
24B	Suffolk fine sandy loam, 2 to 6 percent slopes	8,476	2.5
25B	Tarboro-Bojac complex, 0 to 6 percent slopes, very rarely flooded	1,813	0.5
26A	Tomotley-Roanoke complex, 0 to 2 percent slopes, rarely flooded	6,235	1.8
27C	Udorthents, loamy, 0 to 15 percent slopes	1,593	0.5
28A	Wehadkee silt loam, 0 to 2 percent slopes, frequently flooded	2,004	0.6
29A	Wickham fine sandy loam, 0 to 2 percent slopes, very rarely flooded	2,103	0.6
29B	Wickham fine sandy loam, 2 to 6 percent slopes, very rarely flooded	3,387	1.0
30E	Wateree-Rock outcrop complex, 25 to 70 percent slopes	336	*
W	Water	5,801	1.7
	Total	345,300	100.0

* Less than 0.1 percent.

Table 5.—Land Capability Class, Virginia Soil Management Group, and Yields per Acre of Crops and Pasture

(Yields are those that can be expected under a high level of management. They are for nonirrigated areas. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil)

Map symbol and soil name	Land capability	Virginia soil management group	Alfalfa hay	Corn	Pasture	Soybeans	Wheat
			Tons	Bu	AUM	Bu	Bu
1A:							
Altavista	2w	B	5.5	160	11.5	50	64
1B:							
Altavista	2e	B	5.5	160	11.5	50	64
2B:							
Appling	2e	V	4.0	100	8.0	35	56
2C:							
Appling	3e	V	3.5	88	7.0	31	49
3A:							
Bama	1	R	4.0	120	10.0	40	56
3B:							
Bama	2e	R	4.0	120	9.5	40	56
4A:							
Bibb	6w	EE	---	85	3.0	25	48
Chastain	6w	LL	---	65	---	20	24
5B:							
Bojac	2e	DD	---	85	8.0	25	56
6B:							
Cecil	2e	X	4.0	100	8.0	35	56
7A:							
Chastain	6w	LL	---	65	---	20	24
8A:							
Chewacla	4w	I	---	140	11.0	40	64
9C:							
Helena	3e	KK	---	88	5.3	33	35
Appling	3e	V	3.5	88	7.0	31	49
10E:							
Kempsville	6e	S	---	0	---	0	0
Emporia	6e	R	---	0	---	0	0
Remlik	6e	DD	---	0	---	0	0
11A:							
Kempsville	1	S	---	120	9.5	40	56
Emporia	1	R	4.0	120	8.5	40	56

Table 5.—Land Capability Class, Virginia Soil Management Group, and Yields per Acre of Crops and Pasture—Continued

Map symbol and soil name	Land capability	Virginia soil management group	Alfalfa hay	Corn	Pasture	Soybeans	Wheat
			Tons	Bu	AUM	Bu	Bu
11B:							
Kempsville--------	2e	S	---	120	9.5	40	56
Emporia-----------	2e	R	4.0	120	8.5	40	56
11C:							
Kempsville--------	3e	S	---	106	9.0	35	49
Emporia-----------	3e	R	3.5	106	8.0	35	49
12A:							
Myatt-------------	4w	OO	---	65	5.5	20	24
Slagle------------	2w	K	4.0	130	8.0	40	64
13E:							
Nevarc------------	6e	HH	---	0	---	0	0
14.							
Pits, gravel							
15A:							
Rappahannock------	7w	PP	---	65	---	20	24
16B:							
Remlik------------	4s	DD	---	85	6.6	25	56
16C:							
Remlik------------	4s	DD	---	75	6.6	22	49
16E:							
Remlik------------	6e	DD	---	0	---	0	0
17D:							
Rion--------------	4e	X	3.2	80	4.5	28	45
18A:							
Riverview---------	1	G	5.5	140	10.0	40	64
19A:							
Roanoke-----------	6w	NN	---	---	---	---	---
20B:							
Rumford-----------	2e	DD	---	85	7.0	25	56
20C:							
Rumford-----------	3e	DD	---	75	6.5	22	49
20D:							
Rumford-----------	3e	DD	---	68	6.5	20	45
21C:							
Slagle------------	3e	K	3.5	114	---	35	56
Kempsville--------	3e	S	---	106	9.0	35	49
22A:							
Slagle------------	2w	K	4.0	130	8.0	40	64

Table 5.—Land Capability Class, Virginia Soil Management Group, and Yields per Acre of Crops and Pasture—Continued

Map symbol and soil name	Land capability	Virginia soil management group	Alfalfa hay	Corn	Pasture	Soybeans	Wheat
			Tons	Bu	AUM	Bu	Bu
22B:							
Slagle------------	2e	K	---	130	---	40	64
23A:							
State-------------	1	B	5.5	160	8.5	50	64
23B:							
State-------------	2e	B	5.5	160	8.5	50	64
23C:							
State-------------	3e	B	4.8	141	9.0	44	56
24A:							
Suffolk-----------	1	T	---	110	6.0	40	56
24B:							
Suffolk-----------	2e	T	---	110	6.0	40	56
25B:							
Tarboro-----------	3s	II	---	65	6.0	20	48
Bojac-------------	2e	DD	---	85	8.0	25	56
26A:							
Tomotley----------	4w	OO	---	65	6.0	20	24
Roanoke-----------	4w	NN	---	65	---	20	24
27C.							
Udorthents							
28A:							
Wehadkee----------	6w	MM	---	65	8.5	20	24
29A:							
Wickham-----------	2s	B	5.5	160	9.5	50	64
29B:							
Wickham-----------	2e	B	5.5	160	9.5	50	64
30E:							
Wateree-----------	7s	FF	0.0	0	---	0	0
Rock outcrop.							
W.							
Water							

Table 6.—Prime and Other Important Farmland

(Only the soils considered prime or important farmland are listed. Urban or built-up areas of the soils listed are not considered prime or important farmland. If a soil is prime or important farmland only under certain conditions, the conditions are specified in the "Farmland classification" column)

Map symbol	Map unit name	Farmland classification
1A	Altavista fine sandy loam, 0 to 2 percent slopes, very rarely flooded	All areas are prime farmland
1B	Altavista fine sandy loam, 2 to 6 percent slopes, very rarely flooded	All areas are prime farmland
2B	Appling sandy loam, 2 to 7 percent slopes	All areas are prime farmland
3A	Bama sandy loam, 0 to 2 percent slopes	All areas are prime farmland
3B	Bama sandy loam, 2 to 6 percent slopes	All areas are prime farmland
5B	Bojac sandy loam, 0 to 6 percent slopes, very rarely flooded	All areas are prime farmland
6B	Cecil sandy loam, 2 to 7 percent slopes	All areas are prime farmland
11A	Kempsville-Emporia complex, 0 to 2 percent slopes	All areas are prime farmland
11B	Kempsville-Emporia complex, 2 to 6 percent slopes	All areas are prime farmland
16B	Remlik loamy sand, 2 to 6 percent slopes	All areas are prime farmland
18A	Riverview silt loam, 0 to 2 percent slopes, occasionally flooded	All areas are prime farmland
22A	Slagle fine sandy loam, 0 to 2 percent slopes	All areas are prime farmland
22B	Slagle fine sandy loam, 2 to 6 percent slopes	All areas are prime farmland
23A	State fine sandy loam, 0 to 2 percent slopes, very rarely flooded	All areas are prime farmland
23B	State fine sandy loam, 2 to 6 percent slopes, very rarely flooded	All areas are prime farmland
24A	Suffolk fine sandy loam, 0 to 2 percent slopes	All areas are prime farmland
24B	Suffolk fine sandy loam, 2 to 6 percent slopes	All areas are prime farmland
29A	Wickham fine sandy loam, 0 to 2 percent slopes, very rarely flooded	All areas are prime farmland
29B	Wickham fine sandy loam, 2 to 6 percent slopes, very rarely flooded	All areas are prime farmland
2C	Appling sandy loam, 7 to 15 percent slopes	Farmland of statewide importance
9C	Helena-Appling complex, 2 to 15 percent slopes	Farmland of statewide importance
11C	Kempsville-Emporia complex, 6 to 10 percent slopes	Farmland of statewide importance
20B	Rumford loamy sand, 0 to 6 percent slopes	Farmland of statewide importance
20C	Rumford loamy sand, 6 to 10 percent slopes	Farmland of statewide importance
20D	Rumford loamy sand, 10 to 15 percent slopes	Farmland of statewide importance
21C	Slagle-Kempsville complex, 2 to 15 percent slopes	Farmland of statewide importance
23C	State fine sandy loam, 6 to 10 percent slopes, very rarely flooded	Farmland of statewide importance
8A	Chewacla silt loam, 0 to 2 percent slopes, occasionally flooded	Prime farmland if drained

Table 7.—Hydric Soils

Map symbol	Soil name
4A	Bibb-Chastain complex, 0 to 2 percent slopes, frequently flooded
7A	Chastain loam, 0 to 2 percent slopes, ponded
15A	Rappahannock muck, 0 to 1 percent slopes, frequently flooded
19A	Roanoke loam, 0 to 2 percent slopes, ponded
26A	Tomotley-Roanoke complex, 0 to 2 percent slopes, rarely flooded
28A	Wehadkee silt loam, 0 to 2 percent slopes, frequently flooded

Table 8.—Agricultural Waste Management, Part I

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value
1A:					
Altavista-----------	90	Very limited		Very limited	
		Depth to saturated zone	0.99	Too acid	1.00
		Too acid	0.68	Depth to saturated zone	0.99
				Flooding	0.20
1B:					
Altavista-----------	90	Very limited		Very limited	
		Depth to saturated zone	0.99	Too acid	1.00
		Too acid	0.68	Depth to saturated zone	0.99
				Flooding	0.20
2B:					
Appling-------------	80	Somewhat limited		Somewhat limited	
		Too acid	0.22	Too acid	0.77
		Low adsorption	0.05		
2C:					
Appling-------------	90	Somewhat limited		Somewhat limited	
		Slope	0.37	Too acid	0.77
		Too acid	0.22	Slope	0.37
		Low adsorption	0.05		
3A:					
Bama----------------	90	Somewhat limited		Very limited	
		Too acid	0.68	Too acid	1.00
3B:					
Bama----------------	90	Somewhat limited		Very limited	
		Too acid	0.68	Too acid	1.00
4A:					
Bibb----------------	75	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Flooding	1.00
		Filtering capacity	0.99	Filtering capacity	0.99
Chastain------------	20	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Flooding	1.00
		Flooding	1.00	Slow water movement	1.00

Table 8.—Agricultural Waste Management, Part I—Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value
5B:					
Bojac	85	Very limited		Very limited	
		Filtering capacity	0.99	Filtering capacity	0.99
		Too acid	0.01	Flooding	0.20
				Too acid	0.03
6B:					
Cecil	90	Somewhat limited		Somewhat limited	
		Low adsorption	0.40	Too acid	0.77
		Too acid	0.22	Low adsorption	0.11
7A:					
Chastain	95	Very limited		Very limited	
		Slow water movement	1.00	Ponding	1.00
		Ponding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Flooding	1.00
8A:					
Chewacla	75	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	0.60	Flooding	1.00
		Too acid	0.22	Too acid	0.77
9C:					
Helena	65	Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00
		Depth to saturated zone	0.99	Depth to saturated zone	0.99
		Slope	0.37	Too acid	0.77
Appling	20	Somewhat limited		Somewhat limited	
		Slope	0.37	Too acid	0.77
		Too acid	0.22	Slope	0.37
		Low adsorption	0.05		
10E:					
Kempsville	45	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Too acid	0.32	Too acid	0.91
Emporia	25	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Too acid	0.11	Too acid	0.42
		Depth to saturated zone	0.02	Depth to saturated zone	0.02
Remlik	20	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Filtering capacity	0.99	Filtering capacity	0.99
		Leaching	0.45	Too acid	0.91

Table 8.—Agricultural Waste Management, Part I—Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value
11A:					
Kempsville----------	70	Somewhat limited		Somewhat limited	
		Too acid	0.32	Too acid	0.91
Emporia-------------	30	Somewhat limited		Somewhat limited	
		Too acid	0.11	Too acid	0.42
		Depth to saturated zone	0.02	Depth to saturated zone	0.02
11B:					
Kempsville----------	60	Somewhat limited		Somewhat limited	
		Too acid	0.32	Too acid	0.91
Emporia-------------	35	Somewhat limited		Somewhat limited	
		Too acid	0.11	Too acid	0.42
		Depth to saturated zone	0.02	Depth to saturated zone	0.02
11C:					
Kempsville----------	65	Somewhat limited		Somewhat limited	
		Too acid	0.32	Too acid	0.91
		Slope	0.01	Slope	0.01
Emporia-------------	30	Somewhat limited		Somewhat limited	
		Too acid	0.11	Too acid	0.42
		Depth to saturated zone	0.02	Depth to saturated zone	0.02
		Slope	0.01	Slope	0.01
12A:					
Myatt---------------	70	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too acid	0.68	Too acid	1.00
		Runoff	0.40		
Slagle--------------	20	Somewhat limited		Very limited	
		Slow water movement	0.89	Too acid	1.00
		Too acid	0.73	Slow water movement	0.78
13E:					
Nevarc--------------	85	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Slow water movement	1.00	Slow water movement	1.00
		Depth to saturated zone	0.95	Too acid	1.00
14:					
Pits, gravel--------	85	Not rated		Not rated	
15A:					
Rappahannock--------	85	Very limited		Very limited	
		Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Flooding	1.00

Table 8.—Agricultural Waste Management, Part I—Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value
16B:					
Remlik	95	Very limited		Very limited	
		Filtering capacity	0.99	Filtering capacity	0.99
		Leaching	0.45	Too acid	0.91
		Too acid	0.32		
16C:					
Remlik	95	Very limited		Very limited	
		Filtering capacity	0.99	Filtering capacity	0.99
		Leaching	0.45	Too acid	0.91
		Slope	0.37	Slope	0.37
16E:					
Remlik	90	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Filtering capacity	0.99	Filtering capacity	0.99
		Leaching	0.45	Too acid	0.91
17D:					
Rion	95	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Too acid	0.22	Too acid	0.77
18A:					
Riverview	80	Somewhat limited		Very limited	
		Flooding	0.60	Flooding	1.00
		Too acid	0.08	Too acid	0.31
19A:					
Roanoke	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00
		Slow water movement	0.89	Too acid	0.91
20B:					
Rumford	95	Very limited		Very limited	
		Filtering capacity	0.99	Filtering capacity	0.99
		Too acid	0.32	Too acid	0.91
20C:					
Rumford	95	Very limited		Very limited	
		Filtering capacity	0.99	Filtering capacity	0.99
		Too acid	0.32	Too acid	0.91
		Slope	0.01	Slope	0.01
20D:					
Rumford	90	Very limited		Very limited	
		Filtering capacity	0.99	Filtering capacity	0.99
		Slope	0.84	Too acid	0.91
		Too acid	0.32	Slope	0.84

Table 8.—Agricultural Waste Management, Part I—Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
21C:					
Slagle	55	Somewhat limited		Very limited	
		Slow water movement	0.89	Too acid	1.00
				Slow water	0.78
		Too acid	0.73	movement	0.78
		Slope	0.04	Slope	0.04
Kempsville	30	Somewhat limited		Somewhat limited	
		Too acid	0.32	Too acid	0.91
		Slope	0.04	Slope	0.04
22A:					
Slagle	90	Somewhat limited		Very limited	
		Slow water movement	0.89	Too acid	1.00
				Slow water movement	0.78
		Too acid	0.73		
22B:					
Slagle	95	Somewhat limited		Very limited	
		Slow water movement	0.89	Too acid	1.00
				Slow water movement	0.78
		Too acid	0.73		
23A:					
State	90	Somewhat limited		Somewhat limited	
		Too acid	0.32	Too acid	0.91
				Flooding	0.20
23B:					
State	90	Somewhat limited		Somewhat limited	
		Too acid	0.32	Too acid	0.91
				Flooding	0.20
23C:					
State	90	Somewhat limited		Somewhat limited	
		Too acid	0.32	Too acid	0.91
		Slope	0.01	Flooding	0.20
				Slope	0.01
24A:					
Suffolk	95	Somewhat limited		Somewhat limited	
		Too acid	0.11	Too acid	0.42
24B:					
Suffolk	95	Somewhat limited		Somewhat limited	
		Too acid	0.11	Too acid	0.42
25B:					
Tarboro	60	Very limited		Very limited	
		Filtering capacity	1.00	Filtering capacity	1.00
		Droughty	1.00	Droughty	1.00
		Leaching	0.45	Too acid	0.42
Bojac	35	Very limited		Very limited	
		Filtering capacity	0.99	Filtering capacity	0.99
		Too acid	0.01	Flooding	0.20
				Too acid	0.03

Table 8.—Agricultural Waste Management, Part I—Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge	
		Rating class and limiting features	Value	Rating class and limiting features	Value
26A:					
Tomotley------------	55	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too acid	0.73	Too acid	1.00
		Leaching	0.70	Flooding	0.40
Roanoke-------------	30	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.89	Too acid	0.91
		Runoff	0.40	Slow water movement	0.78
27C:					
Udorthents----------	85	Not rated		Not rated	
28A:					
Wehadkee------------	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Flooding	1.00
		Runoff	0.40	Too acid	0.85
29A:					
Wickham-------------	95	Somewhat limited		Somewhat limited	
		Too acid	0.32	Too acid	0.91
				Flooding	0.20
29B:					
Wickham-------------	95	Somewhat limited		Somewhat limited	
		Too acid	0.32	Too acid	0.91
				Flooding	0.20
30E:					
Wateree-------------	75	Very limited		Very limited	
		Slope	1.00	Droughty	1.00
		Droughty	1.00	Slope	1.00
		Filtering capacity	0.99	Filtering capacity	0.99
Rock outcrop--------	15	Not rated		Not rated	
W:					
Water---------------	100	Not rated		Not rated	

Table 8.—Agricultural Waste Management, Part II

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Disposal of wastewater by irrigation: Rating class and limiting features	Value	Overland flow of wastewater: Rating class and limiting features	Value
1A:					
Altavista	90	Very limited		Very limited	
		Too acid	1.00	Seepage	1.00
		Depth to saturated zone	0.99	Too acid	1.00
				Depth to saturated zone	0.99
1B:					
Altavista	90	Very limited		Very limited	
		Too acid	1.00	Seepage	1.00
		Depth to saturated zone	0.99	Too acid	1.00
		Too steep for surface application	0.08	Depth to saturated zone	0.99
2B:					
Appling	80	Somewhat limited		Very limited	
		Too acid	0.77	Seepage	1.00
		Too steep for surface application	0.32	Too acid	0.77
		Low adsorption	0.05	Low adsorption	0.05
2C:					
Appling	90	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
		Too acid	0.77	Too steep for surface application	0.94
		Too steep for sprinkler application	0.60	Too acid	0.77
3A:					
Bama	90	Very limited		Very limited	
		Too acid	1.00	Seepage	1.00
				Too acid	1.00
3B:					
Bama	90	Very limited		Very limited	
		Too acid	1.00	Seepage	1.00
		Too steep for surface application	0.08	Too acid	1.00
4A:					
Bibb	75	Very limited		Very limited	
		Depth to saturated zone	1.00	Flooding	1.00
		Flooding	1.00	Seepage	1.00
		Filtering capacity	0.99	Depth to saturated zone	1.00

Table 8.—Agricultural Waste Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Disposal of wastewater by irrigation: Rating class and limiting features	Value	Overland flow of wastewater: Rating class and limiting features	Value
4A:					
Chastain	20	Very limited		Very limited	
		Depth to saturated zone	1.00	Flooding	1.00
		Flooding	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Too acid	0.91
5B:					
Bojac	85	Very limited		Very limited	
		Filtering capacity	0.99	Seepage	1.00
		Too acid	0.03	Flooding	0.20
				Too acid	0.03
6B:					
Cecil	90	Somewhat limited		Very limited	
		Too acid	0.77	Seepage	1.00
		Low adsorption	0.40	Too acid	0.77
		Too steep for surface application	0.32	Low adsorption	0.40
7A:					
Chastain	95	Very limited		Very limited	
		Ponding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Ponding	1.00
		Flooding	1.00	Depth to saturated zone	1.00
8A:					
Chewacla	75	Very limited		Very limited	
		Depth to saturated zone	1.00	Flooding	1.00
		Too acid	0.77	Depth to saturated zone	1.00
		Flooding	0.60	Seepage	1.00
9C:					
Helena	65	Very limited		Very limited	
		Slow water movement	1.00	Seepage	1.00
		Too steep for surface application	1.00	Depth to saturated zone	0.99
		Depth to saturated zone	0.99	Too steep for surface application	0.94
Appling	20	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
		Too acid	0.77	Too steep for surface application	0.94
		Too steep for sprinkler application	0.60	Too acid	0.77

Table 8.—Agricultural Waste Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Disposal of wastewater by irrigation: Rating class and limiting features	Value	Overland flow of wastewater: Rating class and limiting features	Value
10E:					
Kempsville----------	45	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
		Too steep for sprinkler application	1.00	Too steep for surface application	1.00
		Too acid	0.91	Too acid	0.91
Emporia-------------	25	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
		Too steep for sprinkler application	1.00	Too steep for surface application	1.00
		Too acid	0.42	Too acid	0.42
Remlik--------------	20	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
		Too steep for sprinkler application	1.00	Too steep for surface application	1.00
		Filtering capacity	0.99	Too acid	
11A:					
Kempsville----------	70	Somewhat limited		Very limited	
		Too acid	0.91	Seepage	1.00
				Too acid	0.91
Emporia-------------	30	Somewhat limited		Very limited	
		Too acid	0.42	Seepage	1.00
		Depth to saturated zone	0.02	Too acid	0.42
				Depth to saturated zone	0.02
11B:					
Kempsville----------	60	Somewhat limited		Very limited	
		Too acid	0.91	Seepage	1.00
		Too steep for surface application	0.08	Too acid	0.91
Emporia-------------	35	Somewhat limited		Very limited	
		Too acid	0.42	Seepage	1.00
		Too steep for surface application	0.08	Too acid	0.42
		Depth to saturated zone	0.02	Depth to saturated zone	0.02

Table 8.—Agricultural Waste Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Disposal of wastewater by irrigation: Rating class and limiting features	Value	Overland flow of wastewater: Rating class and limiting features	Value
11C:					
Kempsville----------	65	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
		Too acid	0.91	Too acid	0.91
		Too steep for sprinkler application	0.10	Too steep for surface application	0.22
Emporia-------------	30	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
		Too acid	0.42	Too acid	0.42
		Too steep for sprinkler application	0.10	Too steep for surface application	0.22
12A:					
Myatt---------------	70	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too acid	1.00	Seepage	1.00
				Too acid	1.00
Slagle--------------	20	Very limited		Very limited	
		Too acid	1.00	Seepage	1.00
		Slow water movement	0.78	Too acid	1.00
13E:					
Nevarc--------------	85	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
		Too steep for sprinkler application	1.00	Too steep for surface application	1.00
		Slow water movement	1.00	Too acid	1.00
14:					
Pits, gravel--------	85	Not rated		Not rated	
15A:					
Rappahannock--------	85	Very limited		Very limited	
		Ponding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Ponding	1.00
		Flooding	1.00	Depth to saturated zone	1.00
16B:					
Remlik--------------	95	Very limited		Very limited	
		Filtering capacity	0.99	Seepage	1.00
		Too acid	0.91	Too acid	0.91
		Too steep for surface application	0.08		

Table 8.—Agricultural Waste Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Disposal of wastewater by irrigation: Rating class and limiting features	Value	Overland flow of wastewater: Rating class and limiting features	Value
16C:					
Remlik	95	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
		Filtering capacity	0.99	Too steep for surface application	0.94
		Too acid	0.91	Too acid	0.91
16E:					
Remlik	90	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
		Too steep for sprinkler application	1.00	Too steep for surface application	1.00
		Filtering capacity	0.99	Too acid	0.91
17D:					
Rion	95	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
		Too steep for sprinkler application	1.00	Too steep for surface application	1.00
		Too acid	0.77	Too acid	0.77
18A:					
Riverview	80	Somewhat limited		Very limited	
		Flooding	0.60	Flooding	1.00
		Too acid	0.31	Seepage	1.00
				Too acid	0.31
19A:					
Roanoke	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Seepage	1.00
		Too acid	0.91	Ponding	1.00
20B:					
Rumford	95	Very limited		Very limited	
		Filtering capacity	0.99	Seepage	1.00
		Too acid	0.91	Too acid	0.91
20C:					
Rumford	95	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
		Filtering capacity	0.99	Too acid	0.91
		Too acid	0.91	Too steep for surface application	0.22

Table 8.—Agricultural Waste Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Disposal of wastewater by irrigation: Rating class and limiting features	Value	Overland flow of wastewater: Rating class and limiting features	Value
20D:					
Rumford	90	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
		Filtering capacity	0.99	Too steep for surface application	1.00
		Too acid	0.91	Too acid	0.91
21C:					
Slagle	55	Very limited		Very limited	
		Too acid	1.00	Seepage	1.00
		Too steep for surface application	1.00	Too acid	1.00
		Slow water movement	0.78	Too steep for surface application	0.50
Kempsville	30	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
		Too acid	0.91	Too acid	0.91
		Too steep for sprinkler application	0.22	Too steep for surface application	0.50
22A:					
Slagle	90	Very limited		Very limited	
		Too acid	1.00	Seepage	1.00
		Slow water movement	0.78	Too acid	1.00
22B:					
Slagle	95	Very limited		Very limited	
		Too acid	1.00	Seepage	1.00
		Slow water movement	0.78	Too acid	1.00
		Too steep for surface application	0.08		
23A:					
State	90	Somewhat limited		Very limited	
		Too acid	0.91	Seepage	1.00
				Too acid	0.91
				Flooding	0.20
23B:					
State	90	Somewhat limited		Very limited	
		Too acid	0.91	Seepage	1.00
		Too steep for surface application	0.08	Too acid	0.91
				Flooding	0.20

Table 8.—Agricultural Waste Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Disposal of wastewater by irrigation: Rating class and limiting features	Value	Overland flow of wastewater: Rating class and limiting features	Value
23C:					
State	90	Very limited		Very limited	
		Too steep for surface application	1.00	Seepage	1.00
		Too acid	0.91	Too acid	0.91
		Too steep for sprinkler application	0.10	Too steep for surface application	0.22
24A:					
Suffolk	95	Somewhat limited		Very limited	
		Too acid	0.42	Seepage	1.00
				Too acid	0.42
24B:					
Suffolk	95	Somewhat limited		Very limited	
		Too acid	0.42	Seepage	1.00
		Too steep for surface application	0.08	Too acid	0.42
25B:					
Tarboro	60	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Droughty	1.00	Too acid	0.42
		Too acid	0.42	Flooding	0.20
Bojac	35	Very limited		Very limited	
		Filtering capacity	0.99	Seepage	1.00
		Too acid	0.03	Flooding	0.20
				Too acid	0.03
26A:					
Tomotley	55	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Too acid	1.00	Depth to saturated zone	1.00
				Too acid	1.00
Roanoke	30	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too acid	0.91	Seepage	1.00
		Slow water movement	0.78	Too acid	0.91
27C:					
Udorthents	85	Not rated		Not rated	
28A:					
Wehadkee	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Flooding	1.00
		Flooding	1.00	Seepage	1.00
		Too acid	0.85	Depth to saturated zone	1.00

Table 8.—Agricultural Waste Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Disposal of wastewater by irrigation		Overland flow of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
29A:					
Wickham-------------	95	Somewhat limited		Very limited	
		Too acid	0.91	Seepage	1.00
				Too acid	0.91
				Flooding	0.20
29B:					
Wickham-------------	95	Somewhat limited		Very limited	
		Too acid	0.91	Seepage	1.00
		Too steep for surface application	0.08	Too acid	0.91
				Flooding	0.20
30E:					
Wateree-------------	75	Very limited		Very limited	
		Droughty	1.00	Seepage	1.00
		Too steep for surface application	1.00	Too steep for surface application	1.00
		Too steep for sprinkler application	1.00	Depth to bedrock	1.00
Rock outcrop--------	15	Not rated		Not rated	
W:					
Water---------------	100	Not rated		Not rated	

Table 8.—Agricultural Waste Management, Part III

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater: Rating class and limiting features	Rapid infiltration of wastewater: Value	Slow rate treatment of wastewater: Rating class and limiting features	Slow rate treatment of wastewater: Value
1A:					
Altavista	90	Very limited		Very limited	
		Depth to saturated zone	1.00	Too acid	1.00
		Slow water movement	1.00	Depth to saturated zone	0.99
		Too acid	0.03		
1B:					
Altavista	90	Very limited		Very limited	
		Depth to saturated zone	1.00	Too acid	1.00
		Slow water movement	1.00	Depth to saturated zone	0.99
		Too acid	0.03	Too steep for surface application	0.08
2B:					
Appling	80	Very limited		Somewhat limited	
		Slow water movement	1.00	Too acid	0.77
		Slope	0.12	Too steep for surface application	0.32
		Too acid	0.07	Low adsorption	0.05
2C:					
Appling	90	Very limited		Very limited	
		Slow water movement	1.00	Too steep for surface application	1.00
		Slope	1.00	Too steep for sprinkler irrigation	0.94
		Too acid	0.07	Too acid	0.77
3A:					
Bama	90	Very limited		Very limited	
		Slow water movement	1.00	Too acid	1.00
		Too acid	0.07		
3B:					
Bama	90	Very limited		Very limited	
		Slow water movement	1.00	Too acid	1.00
		Too acid	0.07	Too steep for surface application	0.08

Table 8.—Agricultural Waste Management, Part III—Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
4A:					
Bibb	75	Very limited		Very limited	
		Flooding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Flooding	1.00
		Slow water movement	1.00	Filtering capacity	0.99
Chastain	20	Very limited		Very limited	
		Flooding	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Filtering capacity	0.99
			1.00		
5B:					
Bojac	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Filtering capacity	0.99
		Slow water movement	0.32	Too acid	0.03
6B:					
Cecil	90	Very limited		Somewhat limited	
		Slow water movement	1.00	Too acid	0.77
				Low adsorption	0.40
		Slope	0.12	Too steep for surface application	0.32
		Too acid	0.07		
7A:					
Chastain	95	Very limited		Very limited	
		Ponding	1.00	Ponding	1.00
		Flooding	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Flooding	1.00
8A:					
Chewacla	75	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Too acid	0.77
				Flooding	0.60
		Flooding	0.60		
9C:					
Helena	65	Very limited		Very limited	
		Slow water movement	1.00	Too steep for surface application	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	0.99
		Slope	1.00	Too steep for sprinkler irrigation	0.94

Table 8.—Agricultural Waste Management, Part III—Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater: Rating class and limiting features	Value	Slow rate treatment of wastewater: Rating class and limiting features	Value
9C:					
Appling	20	Very limited		Very limited	
		Slow water movement	1.00	Too steep for surface application	1.00
		Slope	1.00	Too steep for sprinkler irrigation	0.94
		Too acid		Too acid	0.77
10E:					
Kempsville	45	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Slow water movement	1.00	Too steep for sprinkler irrigation	1.00
				Too acid	0.91
Emporia	25	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Slow water movement	1.00	Too steep for sprinkler irrigation	1.00
		Too acid	0.07	Too acid	0.42
Remlik	20	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Slow water movement	1.00	Too steep for sprinkler irrigation	1.00
				Filtering capacity	0.99
11A:					
Kempsville	70	Very limited		Somewhat limited	
		Slow water movement	1.00	Too acid	0.91
Emporia	30	Very limited		Somewhat limited	
		Slow water movement	1.00	Too acid	0.42
		Too acid	0.07	Depth to saturated zone	0.02
		Depth to saturated zone	0.02		
11B:					
Kempsville	60	Very limited		Somewhat limited	
		Slow water movement	1.00	Too acid	0.91
				Too steep for surface application	0.08

Table 8.—Agricultural Waste Management, Part III—Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater: Rating class and limiting features	Value	Slow rate treatment of wastewater: Rating class and limiting features	Value
11B:					
Emporia-------------	35	Very limited		Somewhat limited	
		Slow water movement	1.00	Too acid	0.42
		Too acid	0.07	Too steep for surface application	0.08
		Depth to saturated zone	0.02	Depth to saturated zone	0.02
11C:					
Kempsville----------	65	Very limited		Very limited	
		Slow water movement	1.00	Too steep for surface application	1.00
		Slope	1.00	Too acid	0.91
				Too steep for sprinkler irrigation	0.22
Emporia-------------	30	Very limited		Very limited	
		Slow water movement	1.00	Too steep for surface application	1.00
		Slope	1.00	Too acid	0.42
		Too acid	0.07	Too steep for sprinkler irrigation	0.22
12A:					
Myatt---------------	70	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Too acid	1.00
		Too acid	0.07		
Slagle--------------	20	Very limited		Very limited	
		Slow water movement	1.00	Too acid	1.00
		Too acid	0.14	Slow water movement	0.60
13E:					
Nevarc--------------	85	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Slow water movement	1.00	Too steep for sprinkler irrigation	1.00
		Depth to saturated zone	0.95	Too acid	1.00
14:					
Pits, gravel--------	85	Not rated		Not rated	
15A:					
Rappahannock--------	85	Very limited		Very limited	
		Ponding	1.00	Ponding	1.00
		Flooding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Flooding	1.00

Table 8.—Agricultural Waste Management, Part III—Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
16B:					
Remlik	95	Very limited		Very limited	
		Slow water movement	1.00	Filtering capacity	0.99
				Too acid	0.91
				Too steep for surface application	0.08
16C:					
Remlik	95	Very limited		Very limited	
		Slow water movement	1.00	Too steep for surface application	1.00
		Slope	1.00		
				Filtering capacity	0.99
				Too steep for sprinkler irrigation	0.94
16E:					
Remlik	90	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Slow water movement	1.00		
				Too steep for sprinkler irrigation	1.00
				Filtering capacity	0.99
17D:					
Rion	95	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Slow water movement	1.00		
				Too steep for sprinkler irrigation	1.00
				Too acid	0.77
18A:					
Riverview	80	Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Flooding	0.60
				Too acid	0.31
		Slow water movement	1.00		
		Flooding	0.60		
19A:					
Roanoke	85	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Ponding	1.00
				Too acid	0.91
		Ponding	1.00		

Table 8.—Agricultural Waste Management, Part III—Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater: Rating class and limiting features	Value	Slow rate treatment of wastewater: Rating class and limiting features	Value
20B:					
Rumford	95	Somewhat limited		Very limited	
		Slow water movement	0.32	Filtering capacity	0.99
				Too acid	0.91
20C:					
Rumford	95	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Slow water movement	0.32		
				Filtering capacity	0.99
				Too acid	0.91
20D:					
Rumford	90	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Slow water movement	0.32		
				Too steep for sprinkler irrigation	1.00
				Filtering capacity	0.99
21C:					
Slagle	55	Very limited		Very limited	
		Slow water movement	1.00	Too acid	1.00
				Too steep for surface application	1.00
		Slope	1.00		
		Too acid	0.14		
				Slow water movement	0.60
Kempsville	30	Very limited		Very limited	
		Slow water movement	1.00	Too steep for surface application	1.00
		Slope	1.00		
				Too acid	0.91
				Too steep for sprinkler irrigation	0.50
22A:					
Slagle	90	Very limited		Very limited	
		Slow water movement	1.00	Too acid	1.00
				Slow water movement	0.60
		Too acid	0.14		
22B:					
Slagle	95	Very limited		Very limited	
		Slow water movement	1.00	Too acid	1.00
				Slow water movement	0.60
		Too acid	0.14		
				Too steep for surface application	0.08

Table 8.—Agricultural Waste Management, Part III—Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater: Rating class and limiting features	Value	Slow rate treatment of wastewater: Rating class and limiting features	Value
23A:					
State	90	Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Too acid	0.91
		Slow water movement	1.00		
		Too acid	0.07		
23B:					
State	90	Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Too acid	0.91
		Slow water movement	1.00	Too steep for surface application	0.08
		Too acid	0.07		
23C:					
State	90	Very limited		Very limited	
		Depth to saturated zone	1.00	Too steep for surface application	1.00
		Slow water movement	1.00	Too acid	0.91
		Slope	1.00	Too steep for sprinkler irrigation	0.22
24A:					
Suffolk	95	Very limited		Somewhat limited	
		Slow water movement	1.00	Too acid	0.42
24B:					
Suffolk	95	Very limited		Somewhat limited	
		Slow water movement	1.00	Too acid	0.42
				Too steep for surface application	0.08
25B:					
Tarboro	60	Not limited		Very limited	
				Filtering capacity	1.00
				Too acid	0.42
Bojac	35	Very limited		Very limited	
		Depth to saturated zone	1.00	Filtering capacity	0.99
		Slow water movement	0.32	Too acid	0.03
26A:					
Tomotley	55	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Too acid	1.00
		Too acid	0.42		

Table 8.—Agricultural Waste Management, Part III—Continued

Map symbol and soil name	Pct. of map unit	Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value
26A:					
Roanoke	30	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Too acid	0.91
		Too acid	0.07	Slow water movement	0.60
27C:					
Udorthents	85	Not rated		Not rated	
28A:					
Wehadkee	85	Very limited		Very limited	
		Flooding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Flooding	1.00
		Slow water movement	1.00	Too acid	0.85
29A:					
Wickham	95	Very limited		Somewhat limited	
		Slow water movement	1.00	Too acid	0.91
29B:					
Wickham	95	Very limited		Somewhat limited	
		Slow water movement	1.00	Too acid	0.91
				Too steep for surface application	0.08
30E:					
Wateree	75	Very limited		Very limited	
		Slope	1.00	Too steep for surface application	1.00
		Depth to bedrock	1.00	Too steep for sprinkler irrigation	1.00
				Depth to bedrock	1.00
Rock outcrop	15	Not rated		Not rated	
W:					
Water	100	Not rated		Not rated	

Table 9.—Forestland Productivity

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
1A:				
Altavista	loblolly pine	91	129	loblolly pine
	longleaf pine	87	114	
	white oak	77	57	
1B:				
Altavista	loblolly pine	91	129	loblolly pine
	longleaf pine	87	114	
	white oak	77	57	
2B:				
Appling	loblolly pine	84	114	loblolly pine, shortleaf pine
	scarlet oak	74	57	
	shortleaf pine	65	100	
	Virginia pine	74	114	
	white oak	64	43	
	yellow-poplar	88	86	
2C:				
Appling	loblolly pine	84	114	loblolly pine, shortleaf pine
	scarlet oak	74	57	
	shortleaf pine	65	100	
	Virginia pine	74	114	
	white oak	64	43	
	yellow-poplar	88	86	
3A:				
Bama	loblolly pine	82	114	loblolly pine
	southern red oak	74	57	
	sweetgum	80	86	
	Virginia pine	74	114	
	yellow-poplar	82	72	
3B:				
Bama	loblolly pine	82	114	loblolly pine
	southern red oak	74	57	
	sweetgum	80	86	
	Virginia pine	74	114	
	yellow-poplar	82	72	
4A:				
Bibb	loblolly pine	100	157	eastern cottonwood, loblolly pine, sweetgum, yellow-poplar
	sweetgum	90	100	
	water oak	90	86	
Chastain	sweetgum	95	114	baldcypress, sweetgum
5B:				
Bojac	loblolly pine	80	114	loblolly pine, sweetgum
	southern red oak	65	43	
	sweetgum	80	86	

Table 9.—Forestland Productivity—Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
6B:				
Cecil	loblolly pine	83	114	loblolly pine, shortleaf pine
	northern red oak	81	57	
	post oak	72	57	
	scarlet oak	81	57	
	shortleaf pine	69	114	
	southern red oak	79	57	
	sweetgum	76	72	
	Virginia pine	71	114	
	white oak	79	57	
	yellow-poplar	92	86	
7A:				
Chastain	sweetgum	95	114	baldcypress, sweetgum
8A:				
Chewacla	loblolly pine	95	143	American sycamore, loblolly pine, sweetgum, yellow-poplar
	sweetgum	97	129	
	water oak	80	72	
	yellow-poplar	95	100	
9C:				
Helena	loblolly pine	84	114	loblolly pine, yellow-poplar
	shortleaf pine	66	100	
Appling	loblolly pine	84	114	loblolly pine, shortleaf pine
	scarlet oak	74	57	
	shortleaf pine	65	100	
	Virginia pine	74	114	
	white oak	64	43	
	yellow-poplar	88	86	
10E:				
Kempsville	loblolly pine	82	114	---
	southern red oak	74	57	
	sweetgum	80	86	
	Virginia pine	74	114	
	yellow-poplar	82	72	
Emporia	loblolly pine	75	100	loblolly pine, sweetgum
	southern red oak	70	57	
Remlik	loblolly pine	80	114	loblolly pine
	southern red oak	74	57	
	Virginia pine	74	114	
	yellow-poplar	80	72	
11A:				
Kempsville	loblolly pine	82	114	loblolly pine
	southern red oak	74	57	
	sweetgum	80	86	
	Virginia pine	74	114	
	yellow-poplar	82	72	
Emporia	loblolly pine	75	100	loblolly pine, sweetgum
	southern red oak	70	57	

Table 9.—Forestland Productivity—Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
11B:				
Kempsville	loblolly pine	82	114	loblolly pine
	southern red oak	74	57	
	sweetgum	80	86	
	Virginia pine	74	114	
	yellow-poplar	82	72	
Emporia	loblolly pine	75	100	loblolly pine, sweetgum
	southern red oak	70	57	
11C:				
Kempsville	loblolly pine	82	114	loblolly pine
	southern red oak	74	57	
	sweetgum	80	86	
	Virginia pine	74	114	
	yellow-poplar	82	72	
Emporia	loblolly pine	75	100	loblolly pine, sweetgum
	southern red oak	70	57	
12A:				
Myatt	loblolly pine	88	129	loblolly pine, sweetgum
	sweetgum	92	114	
	water oak	86	86	
Slagle	loblolly pine	86	129	loblolly pine, sweetgum, yellow-poplar
	southern red oak	76	57	
	sweetgum	86	100	
	water oak	76	72	
	yellow-poplar	90	86	
13E:				
Nevarc	loblolly pine	77	100	loblolly pine
	southern red oak	70	57	
	sweetgum	76	72	
	white oak	70	57	
	yellow-poplar	80	72	
14.				
Pits, gravel				
15A:				
Rappahannock	---	---	---	---
16B:				
Remlik	loblolly pine	80	114	loblolly pine
	southern red oak	74	57	
	Virginia pine	74	114	
	yellow-poplar	80	72	
16C:				
Remlik	loblolly pine	80	114	loblolly pine
	southern red oak	74	57	
	Virginia pine	74	114	
	yellow-poplar	80	72	

Table 9.—Forestland Productivity—Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
16E:				
Remlik	loblolly pine	80	114	loblolly pine
	southern red oak	74	57	
	Virginia pine	74	114	
	yellow-poplar	80	72	
17D:				
Rion	loblolly pine	80	114	loblolly pine, shortleaf pine, yellow-poplar
	post oak	65	43	
	shortleaf pine	70	114	
	southern red oak	80	57	
	sweetgum	80	86	
	white oak	70	57	
	yellow-poplar	90	86	
18A:				
Riverview	loblolly pine	100	157	American sycamore, eastern cottonwood, loblolly pine, sweetgum, yellow-poplar
	sweetgum	100	143	
	yellow-poplar	110	129	
19A:				
Roanoke	sweetgum	94	114	water tupelo
20B:				
Rumford	loblolly pine	80	114	loblolly pine
	southern red oak	65	43	
	Virginia pine	70	114	
20C:				
Rumford	loblolly pine	80	114	loblolly pine
	southern red oak	65	43	
	Virginia pine	70	114	
20D:				
Rumford	loblolly pine	80	114	loblolly pine
	southern red oak	65	43	
	Virginia pine	70	114	
21C:				
Slagle	loblolly pine	86	129	loblolly pine, sweetgum, yellow-poplar
	southern red oak	76	57	
	sweetgum	86	100	
	water oak	76	72	
	yellow-poplar	90	86	
Kempsville	loblolly pine	82	114	loblolly pine
	southern red oak	74	57	
	sweetgum	80	86	
	Virginia pine	74	114	
	yellow-poplar	82	72	
22A:				
Slagle	loblolly pine	86	129	loblolly pine, sweetgum, yellow-poplar
	southern red oak	76	57	
	sweetgum	86	100	
	water oak	76	72	
	yellow-poplar	90	86	

Table 9.—Forestland Productivity—Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
22B:				
Slagle	loblolly pine	86	129	loblolly pine, sweetgum, yellow-poplar
	southern red oak	76	57	
	sweetgum	86	100	
	water oak	76	72	
	yellow-poplar	90	86	
23A:				
State	loblolly pine	86	129	black walnut, loblolly pine, yellow-poplar
	southern red oak	85	72	
	Virginia pine	85	129	
	yellow-poplar	100	114	
23B:				
State	loblolly pine	86	129	black walnut, loblolly pine, yellow-poplar
	southern red oak	85	72	
	Virginia pine	85	129	
	yellow-poplar	100	114	
23C:				
State	loblolly pine	90	129	loblolly pine
	southern red oak	82	57	
	white oak	84	72	
	yellow-poplar	89	86	
24A:				
Suffolk	loblolly pine	82	114	loblolly pine
	shortleaf pine	72	114	
	southern red oak	70	57	
24B:				
Suffolk	loblolly pine	82	114	loblolly pine
	shortleaf pine	72	114	
	southern red oak	70	57	
25B:				
Tarboro	loblolly pine	72	100	loblolly pine, longleaf pine
Bojac	loblolly pine	80	114	loblolly pine, sweetgum
	southern red oak	65	43	
	sweetgum	80	86	
26A:				
Tomotley	loblolly pine	97	143	loblolly pine
	water oak	78	72	
	willow oak	86	86	
Roanoke	sweetgum	94	114	water tupelo
27C.				
Udorthents				
28A:				
Wehadkee	loblolly pine	93	143	green ash, loblolly pine, sweetgum, yellow-poplar
	sweetgum	94	114	
	water oak	91	86	
	willow oak	110	114	
	yellow-poplar	100	114	

Table 9.—Forestland Productivity—Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
29A:				
Wickham	loblolly pine	90	129	loblolly pine
	southern red oak	82	57	
	white oak	84	72	
	yellow-poplar	89	86	
29B:				
Wickham	loblolly pine	90	129	loblolly pine
	southern red oak	82	57	
	white oak	84	72	
	yellow-poplar	89	86	
30E:				
Wateree	loblolly pine	77	100	loblolly pine, Virginia pine, yellow-poplar
	shortleaf pine	69	114	
	southern red oak	72	57	
	Virginia pine	71	114	
	white oak	68	57	
	yellow-poplar	84	86	
Rock outcrop.				
W.				
Water				

Table 10.—Forestland Management, Part I

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings		Suitability for log landings		Soil rutting hazard	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1A:							
Altavista-----------	90	Slight		Well suited		Moderate	
						Low strength	0.50
1B:							
Altavista-----------	90	Slight		Well suited		Moderate	
						Low strength	0.50
2B:							
Appling-------------	80	Slight		Well suited		Moderate	
						Low strength	0.50
2C:							
Appling-------------	90	Slight		Moderately suited		Moderate	
				Slope	0.50	Low strength	0.50
3A:							
Bama----------------	90	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
3B:							
Bama----------------	90	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
4A:							
Bibb----------------	75	Severe		Poorly suited		Moderate	
		Flooding	1.00	Flooding	1.00	Low strength	0.50
				Wetness	1.00		
Chastain------------	20	Severe		Poorly suited		Severe	
		Flooding	1.00	Flooding	1.00	Low strength	1.00
		Low strength	0.50	Wetness	1.00		
				Low strength	0.50		
5B:							
Bojac---------------	85	Slight		Well suited		Moderate	
						Low strength	0.50
6B:							
Cecil---------------	90	Slight		Well suited		Moderate	
						Low strength	0.50
7A:							
Chastain------------	95	Severe		Poorly suited		Severe	
		Flooding	1.00	Ponding	1.00	Low strength	1.00
		Wetness	1.00	Flooding	1.00		
		Low strength	0.50	Wetness	1.00		
8A:							
Chewacla------------	75	Severe		Poorly suited		Severe	
		Flooding	1.00	Flooding	1.00	Low strength	1.00
		Low strength	0.50	Wetness	0.50		
				Low strength	0.50		

Table 10.—Forestland Management, Part I—Continued

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings: Rating class and limiting features	Value	Suitability for log landings: Rating class and limiting features	Value	Soil rutting hazard: Rating class and limiting features	Value
9C:							
Helena	65	Slight		Moderately suited		Moderate	
				Slope	0.50	Low strength	0.50
				Wetness	0.50		
Appling	20	Slight		Moderately suited		Moderate	
				Slope	0.50	Low strength	0.50
10E:							
Kempsville	45	Severe		Poorly suited		Moderate	
		Slope	1.00	Slope	1.00	Low strength	0.50
		Low strength	0.50				
Emporia	25	Severe		Poorly suited		Moderate	
		Slope	1.00	Slope	1.00	Low strength	0.50
Remlik	20	Severe		Poorly suited		Moderate	
		Slope	1.00	Slope	1.00	Low strength	0.50
11A:							
Kempsville	70	Slight		Well suited		Moderate	
						Low strength	0.50
Emporia	30	Slight		Well suited		Moderate	
						Low strength	0.50
11B:							
Kempsville	60	Slight		Well suited		Moderate	
						Low strength	0.50
Emporia	35	Slight		Well suited		Moderate	
						Low strength	0.50
11C:							
Kempsville	65	Slight		Moderately suited		Moderate	
				Slope	0.50	Low strength	0.50
Emporia	30	Slight		Moderately suited		Moderate	
				Slope	0.50	Low strength	0.50
12A:							
Myatt	70	Moderate		Poorly suited		Severe	
		Low strength	0.50	Wetness	1.00	Low strength	1.00
		Sandiness	0.50	Low strength	0.50		
Slagle	20	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
13E:							
Nevarc	85	Severe		Poorly suited		Moderate	
		Slope	1.00	Slope	1.00	Low strength	0.50
		Low strength	0.50				
14:							
Pits, gravel	85	Not rated		Not rated		Not rated	

Table 10.—Forestland Management, Part I—Continued

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings: Rating class and limiting features	Value	Suitability for log landings: Rating class and limiting features	Value	Soil rutting hazard: Rating class and limiting features	Value
15A:							
Rappahannock	85	Severe		Poorly suited		Severe	
		Flooding	1.00	Ponding	1.00	Low strength	1.00
		Wetness	1.00	Flooding	1.00	Wetness	0.50
				Low strength	1.00		
16B:							
Remlik	95	Slight		Well suited		Moderate	
						Low strength	0.50
16C:							
Remlik	95	Slight		Moderately suited		Moderate	
				Slope	0.50	Low strength	0.50
16E:							
Remlik	90	Severe		Poorly suited		Moderate	
		Slope	1.00	Slope	1.00	Low strength	0.50
17D:							
Rion	95	Moderate		Poorly suited		Moderate	
		Slope	0.50	Slope	1.00	Low strength	0.50
18A:							
Riverview	80	Moderate		Moderately suited		Severe	
		Flooding	0.50	Flooding	0.50	Low strength	1.00
		Low strength	0.50	Low strength	0.50		
19A:							
Roanoke	85	Moderate		Poorly suited		Severe	
		Low strength	0.50	Ponding	1.00	Low strength	1.00
				Wetness	1.00		
				Low strength	0.50		
20B:							
Rumford	95	Moderate		Well suited		Moderate	
		Sandiness	0.50			Low strength	0.50
20C:							
Rumford	95	Moderate		Moderately suited		Moderate	
		Sandiness	0.50	Slope	0.50	Low strength	0.50
20D:							
Rumford	90	Moderate		Poorly suited		Moderate	
		Sandiness	0.50	Slope	1.00	Low strength	0.50
21C:							
Slagle	55	Moderate		Moderately suited		Severe	
		Low strength	0.50	Slope	0.50	Low strength	1.00
				Low strength	0.50		
Kempsville	30	Slight		Moderately suited		Moderate	
				Slope	0.50	Low strength	0.50
22A:							
Slagle	90	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00

Table 10.—Forestland Management, Part I—Continued

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings		Suitability for log landings		Soil rutting hazard	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
22B:							
Slagle	95	Moderate		Moderately suited		Severe	
		Low strength	0.50	Low strength	0.50	Low strength	1.00
23A:							
State	90	Slight		Well suited		Moderate	
						Low strength	0.50
23B:							
State	90	Slight		Well suited		Moderate	
						Low strength	0.50
23C:							
State	90	Slight		Moderately suited		Moderate	
				Slope	0.50	Low strength	0.50
24A:							
Suffolk	95	Slight		Well suited		Moderate	
						Low strength	0.50
24B:							
Suffolk	95	Slight		Well suited		Moderate	
						Low strength	0.50
25B:							
Tarboro	60	Moderate		Moderately suited		Moderate	
		Sandiness	0.50	Sandiness	0.50	Low strength	0.50
Bojac	35	Slight		Well suited		Moderate	
						Low strength	0.50
26A:							
Tomotley	55	Slight		Poorly suited		Severe	
				Wetness	1.00	Low strength	1.00
				Low strength	0.50		
Roanoke	30	Moderate		Poorly suited		Severe	
		Low strength	0.50	Wetness	1.00	Low strength	1.00
				Low strength	0.50		
27C:							
Udorthents	85	Not rated		Not rated		Not rated	
28A:							
Wehadkee	85	Severe		Poorly suited		Severe	
		Flooding	1.00	Flooding	1.00	Low strength	1.00
		Low strength	0.50	Wetness	1.00		
				Low strength	0.50		
29A:							
Wickham	95	Slight		Well suited		Moderate	
						Low strength	0.50
29B:							
Wickham	95	Slight		Well suited		Moderate	
						Low strength	0.50

Table 10.—Forestland Management, Part I—Continued

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings		Suitability for log landings		Soil rutting hazard	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
30E:							
Wateree	75	Severe		Poorly suited		Moderate	
		Slope	1.00	Slope	1.00	Low strength	0.50
Rock outcrop	15	Not rated		Not rated		Not rated	
W:							
Water	100	Not rated		Not rated		Not rated	

Table 10.—Forestland Management, Part II

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion		Hazard of erosion on roads and trails		Suitability for roads (natural surface)	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1A:							
Altavista-----------	90	Slight		Slight		Well suited	
1B:							
Altavista-----------	90	Slight		Slight		Well suited	
2B:							
Appling-------------	80	Slight		Moderate		Well suited	
				Slope/erodibility	0.50		
2C:							
Appling-------------	90	Slight		Severe		Moderately suited	
				Slope/erodibility	0.95	Slope	0.50
3A:							
Bama----------------	90	Slight		Slight		Moderately suited	
						Low strength	0.50
3B:							
Bama----------------	90	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
4A:							
Bibb----------------	75	Slight		Slight		Poorly suited	
						Flooding	1.00
						Wetness	1.00
Chastain------------	20	Slight		Slight		Poorly suited	
						Flooding	1.00
						Wetness	1.00
						Low strength	0.50
5B:							
Bojac---------------	85	Slight		Moderate		Well suited	
				Slope/erodibility	0.50		
6B:							
Cecil---------------	90	Slight		Moderate		Well suited	
				Slope/erodibility	0.50		
7A:							
Chastain------------	95	Slight		Slight		Poorly suited	
						Ponding	1.00
						Flooding	1.00
						Wetness	1.00
8A:							
Chewacla------------	75	Slight		Slight		Poorly suited	
						Flooding	1.00
						Wetness	0.50
						Low strength	0.50

Table 10.—Forestland Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
9C:							
Helena	65	Slight		Severe		Moderately suited	
				Slope/erodibility	0.95	Slope	0.50
						Wetness	0.50
Appling	20	Slight		Severe		Moderately suited	
				Slope/erodibility	0.95	Slope	0.50
10E:							
Kempsville	45	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
Emporia	25	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
Remlik	20	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
11A:							
Kempsville	70	Slight		Slight		Well suited	
Emporia	30	Slight		Slight		Well suited	
11B:							
Kempsville	60	Slight		Moderate		Well suited	
				Slope/erodibility	0.50		
Emporia	35	Slight		Moderate		Well suited	
				Slope/erodibility	0.50		
11C:							
Kempsville	65	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
Emporia	30	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
12A:							
Myatt	70	Slight		Slight		Poorly suited	
						Wetness	1.00
						Low strength	0.50
Slagle	20	Slight		Slight		Moderately suited	
						Low strength	0.50
13E:							
Nevarc	85	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
14:							
Pits, gravel	85	Not rated		Not rated		Not rated	
15A:							
Rappahannock	85	Very severe		Very severe		Poorly suited	
		Organic matter content high	1.00	Organic matter content high	1.00	Ponding	1.00
						Flooding	1.00
						Low strength	1.00

Table 10.—Forestland Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
16B:							
Remlik	95	Slight		Slight		Well suited	
16C:							
Remlik	95	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
16E:							
Remlik	90	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
17D:							
Rion	95	Moderate		Severe		Poorly suited	
		Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
18A:							
Riverview	80	Slight		Slight		Moderately suited	
						Flooding	0.50
						Low strength	0.50
19A:							
Roanoke	85	Slight		Slight		Poorly suited	
						Ponding	1.00
						Wetness	1.00
						Low strength	0.50
20B:							
Rumford	95	Slight		Slight		Well suited	
20C:							
Rumford	95	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
20D:							
Rumford	90	Slight		Moderate		Poorly suited	
				Slope/erodibility	0.50	Slope	1.00
21C:							
Slagle	55	Slight		Severe		Moderately suited	
				Slope/erodibility	0.95	Slope	0.50
						Low strength	0.50
Kempsville	30	Slight		Severe		Moderately suited	
				Slope/erodibility	0.95	Slope	0.50
22A:							
Slagle	90	Slight		Slight		Moderately suited	
						Low strength	0.50
22B:							
Slagle	95	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Low strength	0.50
23A:							
State	90	Slight		Slight		Well suited	
23B:							
State	90	Slight		Moderate		Well suited	
				Slope/erodibility	0.50		

Table 10.—Forestland Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Hazard of off-road or off-trail erosion		Hazard of erosion on roads and trails		Suitability for roads (natural surface)	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
23C:							
State	90	Slight		Moderate		Moderately suited	
				Slope/erodibility	0.50	Slope	0.50
24A:							
Suffolk	95	Slight		Slight		Well suited	
24B:							
Suffolk	95	Slight		Slight		Well suited	
25B:							
Tarboro	60	Slight		Slight		Moderately suited	
						Sandiness	0.50
Bojac	35	Slight		Moderate		Well suited	
				Slope/erodibility	0.50		
26A:							
Tomotley	55	Slight		Slight		Poorly suited	
						Wetness	1.00
						Low strength	0.50
Roanoke	30	Slight		Slight		Poorly suited	
						Wetness	1.00
						Low strength	0.50
27C:							
Udorthents	85	Not rated		Not rated		Not rated	
28A:							
Wehadkee	85	Slight		Slight		Poorly suited	
						Flooding	1.00
						Wetness	1.00
						Low strength	0.50
29A:							
Wickham	95	Slight		Slight		Well suited	
29B:							
Wickham	95	Slight		Moderate		Well suited	
				Slope/erodibility	0.50		
30E:							
Wateree	75	Severe		Severe		Poorly suited	
		Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
Rock outcrop	15	Not rated		Not rated		Not rated	
W:							
Water	100	Not rated		Not rated		Not rated	

Table 10.—Forestland Management, Part III

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
1A:							
Altavista	90	Well suited		Well suited		Well suited	
1B:							
Altavista	90	Well suited		Well suited		Well suited	
2B:							
Appling	80	Well suited		Moderately suited		Well suited	
				Slope	0.50		
2C:							
Appling	90	Well suited		Moderately suited		Well suited	
				Slope	0.50		
3A:							
Bama	90	Well suited		Well suited		Moderately suited	
						Low strength	0.50
3B:							
Bama	90	Well suited		Well suited		Moderately suited	
						Low strength	0.50
4A:							
Bibb	75	Well suited		Well suited		Well suited	
Chastain	20	Well suited		Well suited		Moderately suited	
						Low strength	0.50
5B:							
Bojac	85	Well suited		Well suited		Well suited	
6B:							
Cecil	90	Well suited		Moderately suited		Well suited	
				Slope	0.50		
7A:							
Chastain	95	Poorly suited		Poorly suited		Poorly suited	
		Wetness	0.75	Wetness	0.75	Wetness	1.00
						Low strength	0.50
8A:							
Chewacla	75	Well suited		Well suited		Moderately suited	
						Low strength	0.50
9C:							
Helena	65	Well suited		Moderately suited		Well suited	
				Slope	0.50		
Appling	20	Well suited		Moderately suited		Well suited	
				Slope	0.50		

Table 10.—Forestland Management, Part III—Continued

Map symbol and soil name	Pct. of map unit	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
10E:							
Kempsville----------	45	Well suited		Unsuited		Moderately suited	
				Slope	1.00	Slope	0.50
Emporia-------------	25	Well suited		Unsuited		Moderately suited	
				Slope	1.00	Slope	0.50
Remlik--------------	20	Well suited		Unsuited		Moderately suited	
				Slope	1.00	Slope	0.50
11A:							
Kempsville----------	70	Well suited		Well suited		Well suited	
Emporia-------------	30	Well suited		Well suited		Well suited	
11B:							
Kempsville----------	60	Well suited		Well suited		Well suited	
Emporia-------------	35	Well suited		Well suited		Well suited	
11C:							
Kempsville----------	65	Well suited		Moderately suited		Well suited	
				Slope	0.50		
Emporia-------------	30	Well suited		Moderately suited		Well suited	
				Slope	0.50		
12A:							
Myatt---------------	70	Well suited		Well suited		Moderately suited	
						Low strength	0.50
Slagle--------------	20	Well suited		Well suited		Moderately suited	
						Low strength	0.50
13E:							
Nevarc--------------	85	Poorly suited		Unsuited		Moderately suited	
		Stickiness; high plasticity index	0.75	Slope	1.00	Slope	0.50
				Stickiness; high plasticity index	0.75		
14:							
Pits, gravel--------	85	Not rated		Not rated		Not rated	
15A:							
Rappahannock--------	85	Poorly suited		Poorly suited		Poorly suited	
		Wetness	0.75	Wetness	0.75	Low strength	1.00
						Wetness	1.00
16B:							
Remlik--------------	95	Well suited		Well suited		Well suited	
16C:							
Remlik--------------	95	Well suited		Moderately suited		Well suited	
				Slope	0.50		
16E:							
Remlik--------------	90	Well suited		Unsuited		Moderately suited	
				Slope	1.00	Slope	0.50

Table 10.—Forestland Management, Part III—Continued

Map symbol and soil name	Pct. of map unit	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
17D:							
Rion----------------	95	Well suited		Poorly suited		Moderately suited	
				Slope	0.75	Slope	0.50
18A:							
Riverview-----------	80	Well suited		Well suited		Moderately suited	
						Low strength	0.50
19A:							
Roanoke-------------	85	Poorly suited		Poorly suited		Moderately suited	
		Stickiness; high plasticity index	0.75	Stickiness; high plasticity index	0.75	Low strength	0.50
20B:							
Rumford-------------	95	Well suited		Well suited		Well suited	
20C:							
Rumford-------------	95	Well suited		Moderately suited		Well suited	
				Slope	0.50		
20D:							
Rumford-------------	90	Well suited		Moderately suited		Well suited	
				Slope	0.50		
21C:							
Slagle--------------	55	Well suited		Moderately suited		Moderately suited	
				Slope	0.50	Low strength	0.50
Kempsville----------	30	Well suited		Moderately suited		Well suited	
				Slope	0.50		
22A:							
Slagle--------------	90	Well suited		Well suited		Moderately suited	
						Low strength	0.50
22B:							
Slagle--------------	95	Well suited		Well suited		Moderately suited	
						Low strength	0.50
23A:							
State---------------	90	Well suited		Well suited		Well suited	
23B:							
State---------------	90	Well suited		Well suited		Well suited	
23C:							
State---------------	90	Well suited		Moderately suited		Well suited	
				Slope	0.50		
24A:							
Suffolk-------------	95	Well suited		Well suited		Well suited	
24B:							
Suffolk-------------	95	Well suited		Well suited		Well suited	
25B:							
Tarboro-------------	60	Moderately suited		Moderately suited		Moderately suited	
		Sandiness	0.50	Sandiness	0.50	Sandiness	0.50
Bojac---------------	35	Well suited		Well suited		Well suited	

Table 10.—Forestland Management, Part III—Continued

Map symbol and soil name	Pct. of map unit	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
26A:							
Tomotley	55	Well suited		Well suited		Moderately suited	
						Low strength	0.50
Roanoke	30	Poorly suited		Poorly suited		Moderately suited	
		Stickiness; high plasticity index	0.75	Stickiness; high plasticity index	0.75	Low strength	0.50
27C:							
Udorthents	85	Not rated		Not rated		Not rated	
28A:							
Wehadkee	85	Well suited		Well suited		Moderately suited	
						Low strength	0.50
29A:							
Wickham	95	Well suited		Well suited		Well suited	
29B:							
Wickham	95	Well suited		Well suited		Well suited	
30E:							
Wateree	75	Moderately suited		Unsuited		Poorly suited	
		Slope	0.50	Slope	1.00	Slope	1.00
Rock outcrop	15	Not rated		Not rated		Not rated	
W:							
Water	100	Not rated		Not rated		Not rated	

Table 10.—Forestland Management, Part IV

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Suitability for mechanical site preparation (surface)		Suitability for mechanical site preparation (deep)	
		Rating class and limiting features	Value	Rating class and limiting features	Value
1A:					
Altavista	90	Well suited		Well suited	
1B:					
Altavista	90	Well suited		Well suited	
2B:					
Appling	80	Well suited		Well suited	
2C:					
Appling	90	Well suited		Well suited	
3A:					
Bama	90	Well suited		Well suited	
3B:					
Bama	90	Well suited		Well suited	
4A:					
Bibb	75	Well suited		Well suited	
Chastain	20	Well suited		Well suited	
5B:					
Bojac	85	Well suited		Well suited	
6B:					
Cecil	90	Well suited		Well suited	
7A:					
Chastain	95	Poorly suited		Unsuited	
		Wetness	0.75	Wetness	1.00
8A:					
Chewacla	75	Well suited		Well suited	
9C:					
Helena	65	Well suited		Well suited	
Appling	20	Well suited		Well suited	
10E:					
Kempsville	45	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
Emporia	25	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
Remlik	20	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50

Table 10.—Forestland Management, Part IV—Continued

Map symbol and soil name	Pct. of map unit	Suitability for mechanical site preparation (surface): Rating class and limiting features	Value	Suitability for mechanical site preparation (deep): Rating class and limiting features	Value
11A:					
Kempsville----------	70	Well suited		Well suited	
Emporia-------------	30	Well suited		Well suited	
11B:					
Kempsville----------	60	Well suited		Well suited	
Emporia-------------	35	Well suited		Well suited	
11C:					
Kempsville----------	65	Well suited		Well suited	
Emporia-------------	30	Well suited		Well suited	
12A:					
Myatt---------------	70	Well suited		Well suited	
Slagle--------------	20	Well suited		Well suited	
13E:					
Nevarc--------------	85	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
		Stickiness; high plasticity index	0.50		
14:					
Pits, gravel--------	85	Not rated		Not rated	
15A:					
Rappahannock--------	85	Poorly suited		Unsuited	
		Wetness	0.75	Wetness	1.00
16B:					
Remlik--------------	95	Well suited		Well suited	
16C:					
Remlik--------------	95	Well suited		Well suited	
16E:					
Remlik--------------	90	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
17D:					
Rion----------------	95	Poorly suited		Poorly suited	
		Slope	0.50	Slope	0.50
18A:					
Riverview-----------	80	Well suited		Well suited	
19A:					
Roanoke-------------	85	Poorly suited		Well suited	
		Stickiness; high plasticity index	0.50		
20B:					
Rumford-------------	95	Well suited		Well suited	
20C:					
Rumford-------------	95	Well suited		Well suited	

Table 10.—Forestland Management, Part IV—Continued

Map symbol and soil name	Pct. of map unit	Suitability for mechanical site preparation (surface)		Suitability for mechanical site preparation (deep)	
		Rating class and limiting features	Value	Rating class and limiting features	Value
20D:					
Rumford	90	Well suited		Well suited	
21C:					
Slagle	55	Well suited		Well suited	
Kempsville	30	Well suited		Well suited	
22A:					
Slagle	90	Well suited		Well suited	
22B:					
Slagle	95	Well suited		Well suited	
23A:					
State	90	Well suited		Well suited	
23B:					
State	90	Well suited		Well suited	
23C:					
State	90	Well suited		Well suited	
24A:					
Suffolk	95	Well suited		Well suited	
24B:					
Suffolk	95	Well suited		Well suited	
25B:					
Tarboro	60	Well suited		Well suited	
Bojac	35	Well suited		Well suited	
26A:					
Tomotley	55	Well suited		Well suited	
Roanoke	30	Poorly suited		Well suited	
		Stickiness; high plasticity index	0.50		
27C:					
Udorthents	85	Not rated		Not rated	
28A:					
Wehadkee	85	Well suited		Well suited	
29A:					
Wickham	95	Well suited		Well suited	
29B:					
Wickham	95	Well suited		Well suited	
30E:					
Wateree	75	Unsuited		Unsuited	
		Slope	1.00	Slope	1.00
Rock outcrop	15	Not rated		Not rated	
W:					
Water	100	Not rated		Not rated	

Table 10.—Forestland Management, Part V

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Value	Potential for seedling mortality: Rating class and limiting features	Value
1A:					
Altavista	90	Moderate		Low	
		Texture/rock fragments	0.50		
1B:					
Altavista	90	Moderate		Low	
		Texture/rock fragments	0.50		
2B:					
Appling	80	Moderate		Low	
		Texture/rock fragments	0.50		
2C:					
Appling	90	Moderate		Low	
		Texture/rock fragments	0.50		
3A:					
Bama	90	Moderate		Low	
		Texture/rock fragments	0.50		
3B:					
Bama	90	Moderate		Low	
		Texture/rock fragments	0.50		
4A:					
Bibb	75	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
Chastain	20	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
5B:					
Bojac	85	Moderate		Low	
		Texture/rock fragments	0.50		
6B:					
Cecil	90	Moderate		Low	
		Texture/rock fragments	0.50		
7A:					
Chastain	95	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00

Table 10.—Forestland Management, Part V—Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Value	Potential for seedling mortality: Rating class and limiting features	Value
8A:					
Chewacla	75	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
9C:					
Helena	65	Moderate		Low	
		Texture/rock fragments	0.50		
Appling	20	Moderate		Low	
		Texture/rock fragments	0.50		
10E:					
Kempsville	45	High		Low	
		Texture/rock fragments	1.00		
Emporia	25	Moderate		Low	
		Texture/rock fragments	0.50		
Remlik	20	High		Low	
		Texture/rock fragments	1.00		
11A:					
Kempsville	70	High		Low	
		Texture/rock fragments	1.00		
Emporia	30	Moderate		Low	
		Texture/rock fragments	0.50		
11B:					
Kempsville	60	High		Low	
		Texture/rock fragments	1.00		
Emporia	35	Moderate		Low	
		Texture/rock fragments	0.50		
11C:					
Kempsville	65	High		Low	
		Texture/rock fragments	1.00		
Emporia	30	Moderate		Low	
		Texture/rock fragments	0.50		
12A:					
Myatt	70	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00

Table 10.—Forestland Management, Part V—Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Value	Potential for seedling mortality: Rating class and limiting features	Value
12A:					
Slagle----------------	20	Moderate		Low	
		Texture/rock fragments	0.50		
13E:					
Nevarc----------------	85	Moderate		Moderate	
		Texture/slope/ rock fragments	0.50	Soil reaction	0.50
14:					
Pits, gravel----------	85	Not rated		Not rated	
15A:					
Rappahannock----------	85	Low		High	
				Wetness	1.00
16B:					
Remlik----------------	95	High		Low	
		Texture/rock fragments	1.00		
16C:					
Remlik----------------	95	High		Low	
		Texture/rock fragments	1.00		
16E:					
Remlik----------------	90	High		Low	
		Texture/rock fragments	1.00		
17D:					
Rion------------------	95	Moderate		Low	
		Texture/rock fragments	0.50		
18A:					
Riverview-------------	80	Low		Low	
		Texture/rock fragments	0.10		
19A:					
Roanoke---------------	85	Moderate		High	
		Texture/rock fragments	0.50	Wetness	1.00
20B:					
Rumford---------------	95	High		Low	
		Texture/rock fragments	1.00		
20C:					
Rumford---------------	95	High		Low	
		Texture/rock fragments	1.00		
20D:					
Rumford---------------	90	High		Low	
		Texture/rock fragments	1.00		

Table 10.—Forestland Management, Part V—Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Value	Potential for seedling mortality: Rating class and limiting features	Value
21C:					
Slagle	55	Moderate		Low	
		Texture/rock fragments	0.50		
Kempsville	30	High		Low	
		Texture/rock fragments	1.00		
22A:					
Slagle	90	Moderate		Low	
		Texture/rock fragments	0.50		
22B:					
Slagle	95	Moderate		Low	
		Texture/rock fragments	0.50		
23A:					
State	90	Moderate		Low	
		Texture/rock fragments	0.50		
23B:					
State	90	Moderate		Low	
		Texture/rock fragments	0.50		
23C:					
State	90	Moderate		Low	
		Texture/rock fragments	0.50		
24A:					
Suffolk	95	Moderate		Low	
		Texture/rock fragments	0.50		
24B:					
Suffolk	95	Moderate		Low	
		Texture/rock fragments	0.50		
25B:					
Tarboro	60	High		Low	
		Texture/rock fragments	1.00		
Bojac	35	Moderate		Low	
		Texture/rock fragments	0.50		
26A:					
Tomotley	55	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
Roanoke	30	Moderate		High	
		Texture/rock fragments	0.50	Wetness	1.00

Table 10.—Forestland Management, Part V—Continued

Map symbol and soil name	Pct. of map unit	Potential for damage to soil by fire: Rating class and limiting features	Value	Potential for seedling mortality: Rating class and limiting features	Value
27C:					
Udorthents	85	Not rated		Not rated	
28A:					
Wehadkee	85	Low		High	
		Texture/rock fragments	0.10	Wetness	1.00
29A:					
Wickham	95	High		Low	
		Texture/rock fragments	1.00		
29B:					
Wickham	95	High		Low	
		Texture/rock fragments	1.00		
30E:					
Wateree	75	Moderate		Low	
		Texture/rock fragments	0.50		
Rock outcrop	15	Not rated		Not rated	
W:					
Water	100	Not rated		Not rated	

Table 11.—Recreational Development, Part I

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1A:							
Altavista	90	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Too sandy	0.79	Too sandy	0.79
		Too sandy	0.79	Depth to saturated zone	0.19	Depth to saturated zone	0.39
		Depth to saturated zone	0.39				
1B:							
Altavista	90	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Too sandy	0.79	Too sandy	0.79
		Too sandy	0.79	Depth to saturated zone	0.19	Slope	0.50
		Depth to saturated zone	0.39			Depth to saturated zone	0.39
2B:							
Appling	80	Not limited		Not limited		Somewhat limited	
						Slope	0.88
2C:							
Appling	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
3A:							
Bama	90	Not limited		Not limited		Not limited	
3B:							
Bama	90	Not limited		Not limited		Somewhat limited	
						Slope	0.50
4A:							
Bibb	75	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Too sandy	0.81	Flooding	1.00
		Too sandy	0.81	Flooding	0.40	Too sandy	0.81
Chastain	20	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Slow water movement	0.94	Flooding	1.00
		Slow water movement	0.94	Flooding	0.40	Slow water movement	0.94
5B:							
Bojac	85	Very limited		Not limited		Somewhat limited	
		Flooding	1.00			Slope	0.12
6B:							
Cecil	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.01	Too sandy	0.01	Slope	0.88
						Too sandy	0.01

Table 11.—Recreational Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Value	Picnic areas: Rating class and limiting features	Value	Playgrounds: Rating class and limiting features	Value
7A:							
Chastain------------	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Ponding	1.00	Slow water movement	0.94	Ponding	1.00
8A:							
Chewacla------------	75	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	0.99	Depth to saturated zone	1.00
		Flooding	1.00			Flooding	0.60
9C:							
Helena--------------	65	Somewhat limited		Somewhat limited		Very limited	
		Slow water movement	0.94	Slow water movement	0.94	Slope	1.00
		Depth to saturated zone	0.44	Slope	0.37	Slow water movement	0.94
		Slope	0.37	Depth to saturated zone	0.22	Depth to saturated zone	0.44
Appling-------------	20	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
10E:							
Kempsville----------	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Emporia-------------	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Remlik--------------	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too sandy	0.42	Too sandy	0.42	Too sandy	0.42
11A:							
Kempsville----------	70	Not limited		Not limited		Not limited	
Emporia-------------	30	Not limited		Not limited		Not limited	
11B:							
Kempsville----------	60	Not limited		Not limited		Somewhat limited	
						Slope	0.50
Emporia-------------	35	Not limited		Not limited		Somewhat limited	
						Slope	0.50
11C:							
Kempsville----------	65	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.01	Slope	0.01	Slope	1.00
Emporia-------------	30	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.01	Slope	0.01	Slope	1.00
12A:							
Myatt---------------	70	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Slagle--------------	20	Not limited		Not limited		Not limited	

Table 11.—Recreational Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
13E:							
Nevarc	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Slow water movement	0.94	Slow water movement	0.94	Slow water movement	0.94
		Depth to saturated zone	0.07	Depth to saturated zone	0.03	Depth to saturated zone	0.07
14:							
Pits, gravel	85	Not rated		Not rated		Not rated	
15A:							
Rappahannock	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Depth to saturated zone	1.00	Organic matter content	1.00
		Ponding	1.00	Organic matter content	1.00	Flooding	1.00
16B:							
Remlik	95	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.42	Too sandy	0.42	Slope	0.50
						Too sandy	0.42
16C:							
Remlik	95	Somewhat limited		Somewhat limited		Very limited	
		Too sandy	0.42	Too sandy	0.42	Slope	1.00
		Slope	0.37	Slope	0.37	Too sandy	0.42
16E:							
Remlik	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too sandy	0.42	Too sandy	0.42	Too sandy	0.42
17D:							
Rion	95	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
18A:							
Riverview	80	Very limited		Not limited		Somewhat limited	
		Flooding	1.00			Flooding	0.60
19A:							
Roanoke	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Slow water movement	0.60	Slow water movement	0.60	Slow water movement	0.60
20B:							
Rumford	95	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.81	Too sandy	0.81	Too sandy	0.81
						Slope	0.12
20C:							
Rumford	95	Somewhat limited		Somewhat limited		Very limited	
		Too sandy	0.81	Too sandy	0.81	Slope	1.00
		Slope	0.01	Slope	0.01	Too sandy	0.81

Table 11.—Recreational Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Value	Picnic areas: Rating class and limiting features	Value	Playgrounds: Rating class and limiting features	Value
20D:							
Rumford	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.84	Slope	0.84	Slope	1.00
		Too sandy	0.81	Too sandy	0.81	Too sandy	0.81
21C:							
Slagle	55	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.04	Slope	0.04	Slope	1.00
Kempsville	30	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.04	Slope	0.04	Slope	1.00
22A:							
Slagle	90	Not limited		Not limited		Not limited	
22B:							
Slagle	95	Not limited		Not limited		Somewhat limited	
						Slope	0.50
23A:							
State	90	Very limited		Not limited		Not limited	
		Flooding	1.00				
23B:							
State	90	Very limited		Not limited		Somewhat limited	
		Flooding	1.00			Slope	0.50
23C:							
State	90	Very limited		Somewhat limited		Very limited	
		Flooding	1.00	Slope	0.01	Slope	1.00
		Slope	0.01				
24A:							
Suffolk	95	Not limited		Not limited		Not limited	
24B:							
Suffolk	95	Not limited		Not limited		Somewhat limited	
						Slope	0.50
25B:							
Tarboro	60	Very limited		Very limited		Very limited	
		Flooding	1.00	Too sandy	1.00	Too sandy	1.00
		Too sandy	1.00			Slope	0.12
Bojac	35	Very limited		Not limited		Somewhat limited	
		Flooding	1.00			Slope	0.12
26A:							
Tomotley	55	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Too sandy	0.01	Too sandy	0.01
		Too sandy	0.01				
Roanoke	30	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Slow water movement	0.60	Slow water movement	0.60
		Slow water movement	0.60				

Table 11.—Recreational Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
27C:							
Udorthents	85	Not rated		Not rated		Not rated	
28A:							
Wehadkee	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Flooding	0.40	Flooding	1.00
29A:							
Wickham	95	Very limited		Not limited		Not limited	
		Flooding	1.00				
29B:							
Wickham	95	Very limited		Not limited		Somewhat limited	
		Flooding	1.00			Slope	0.50
30E:							
Wateree	75	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.97
Rock outcrop	15	Not rated		Not rated		Not rated	
W:							
Water	100	Not rated		Not rated		Not rated	

Table 11.—Recreational Development, Part II

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
1A:							
Altavista-----------	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.79	Too sandy	0.79	Depth to saturated zone	0.19
1B:							
Altavista-----------	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.79	Too sandy	0.79	Depth to saturated zone	0.19
2B:							
Appling-------------	80	Not limited		Not limited		Not limited	
2C:							
Appling-------------	90	Not limited		Not limited		Somewhat limited	
						Slope	0.37
3A:							
Bama----------------	90	Not limited		Not limited		Not limited	
3B:							
Bama----------------	90	Not limited		Not limited		Not limited	
4A:							
Bibb----------------	75	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Too sandy	0.81	Too sandy	0.81	Depth to saturated zone	1.00
		Flooding	0.40	Flooding	0.40		
Chastain------------	20	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Flooding	0.40	Flooding	0.40	Depth to saturated zone	1.00
5B:							
Bojac---------------	85	Not limited		Not limited		Not limited	
6B:							
Cecil---------------	90	Somewhat limited		Somewhat limited		Not limited	
		Too sandy	0.01	Too sandy	0.01		
7A:							
Chastain------------	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00	Flooding	1.00
		Flooding	0.40	Flooding	0.40	Depth to saturated zone	1.00
8A:							
Chewacla------------	75	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.99	Depth to saturated zone	0.99	Depth to saturated zone	0.99
						Flooding	0.60

Table 11.—Recreational Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
9C:							
Helena	65	Not limited		Not limited		Somewhat limited	
						Slope	0.37
						Depth to saturated zone	0.22
Appling	20	Not limited		Not limited		Somewhat limited	
						Slope	0.37
10E:							
Kempsville	45	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Slope	0.56	Slope	1.00
Emporia	25	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Slope	0.56	Slope	1.00
Remlik	20	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Slope	0.56	Slope	1.00
		Too sandy	0.42	Too sandy	0.42	Droughty	0.03
11A:							
Kempsville	70	Not limited		Not limited		Not limited	
Emporia	30	Not limited		Not limited		Not limited	
11B:							
Kempsville	60	Not limited		Not limited		Not limited	
Emporia	35	Not limited		Not limited		Not limited	
11C:							
Kempsville	65	Not limited		Not limited		Somewhat limited	
						Slope	0.01
Emporia	30	Not limited		Not limited		Somewhat limited	
						Slope	0.01
12A:							
Myatt	70	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Slagle	20	Not limited		Not limited		Not limited	
13E:							
Nevarc	85	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Slope	0.56	Slope	1.00
						Depth to saturated zone	0.03
14:							
Pits, gravel	85	Not rated		Not rated		Not rated	
15A:							
Rappahannock	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
						Flooding	1.00
		Organic matter content	1.00	Organic matter content	1.00	Organic matter content	1.00
		Ponding	1.00	Ponding	1.00		

Table 11.—Recreational Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
16B:							
Remlik----------------	95	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.42	Too sandy	0.42	Droughty	0.03
16C:							
Remlik----------------	95	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.42	Too sandy	0.42	Slope	0.37
						Droughty	0.03
16E:							
Remlik----------------	90	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Slope	0.56	Slope	1.00
		Too sandy	0.42	Too sandy	0.42	Droughty	0.03
17D:							
Rion------------------	95	Somewhat limited		Not limited		Very limited	
		Slope	0.50			Slope	1.00
18A:							
Riverview-------------	80	Not limited		Not limited		Somewhat limited	
						Flooding	0.60
19A:							
Roanoke---------------	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
20B:							
Rumford---------------	95	Somewhat limited		Somewhat limited		Not limited	
		Too sandy	0.81	Too sandy	0.81		
20C:							
Rumford---------------	95	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.81	Too sandy	0.81	Slope	0.01
20D:							
Rumford---------------	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.81	Too sandy	0.81	Slope	0.84
21C:							
Slagle----------------	55	Not limited		Not limited		Somewhat limited	
						Slope	0.04
Kempsville------------	30	Not limited		Not limited		Somewhat limited	
						Slope	0.04
22A:							
Slagle----------------	90	Not limited		Not limited		Not limited	
22B:							
Slagle----------------	95	Not limited		Not limited		Not limited	
23A:							
State-----------------	90	Not limited		Not limited		Not limited	
23B:							
State-----------------	90	Not limited		Not limited		Not limited	

Table 11.—Recreational Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
23C:							
State	90	Not limited		Not limited		Somewhat limited	
						Slope	0.01
24A:							
Suffolk	95	Not limited		Not limited		Not limited	
24B:							
Suffolk	95	Not limited		Not limited		Not limited	
25B:							
Tarboro	60	Very limited		Very limited		Very limited	
		Too sandy	1.00	Too sandy	1.00	Droughty	1.00
						Too sandy	0.50
Bojac	35	Not limited		Not limited		Not limited	
26A:							
Tomotley	55	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too sandy	0.01	Too sandy	0.01		
Roanoke	30	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
27C:							
Udorthents	85	Not rated		Not rated		Not rated	
28A:							
Wehadkee	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Flooding	0.40	Flooding	0.40	Depth to saturated zone	1.00
29A:							
Wickham	95	Not limited		Not limited		Not limited	
29B:							
Wickham	95	Not limited		Not limited		Not limited	
30E:							
Wateree	75	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.97
						Droughty	0.90
Rock outcrop	15	Not rated		Not rated		Not rated	
W:							
Water	100	Not rated		Not rated		Not rated	

Table 12.—Building Site Development, Part I

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1A:							
Altavista-----------	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	0.39	Depth to saturated zone	1.00	Depth to saturated zone	0.39
1B:							
Altavista-----------	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	0.39	Depth to saturated zone	1.00	Depth to saturated zone	0.39
2B:							
Appling-------------	80	Not limited		Not limited		Somewhat limited	
						Slope	0.12
2C:							
Appling-------------	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
3A:							
Bama----------------	90	Not limited		Not limited		Not limited	
3B:							
Bama----------------	90	Not limited		Not limited		Not limited	
4A:							
Bibb----------------	75	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Chastain------------	20	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
5B:							
Bojac---------------	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
				Depth to saturated zone	0.15		
6B:							
Cecil---------------	90	Not limited		Not limited		Somewhat limited	
						Slope	0.12
7A:							
Chastain------------	95	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00

Table 12.—Building Site Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
8A:							
Chewacla	75	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
9C:							
Helena	65	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to saturated zone	1.00	Shrink-swell	1.00
		Depth to saturated zone	0.44	Shrink-swell	1.00	Slope	1.00
		Slope	0.37	Slope	0.37	Depth to saturated zone	0.44
Appling	20	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
10E:							
Kempsville	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Emporia	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to saturated zone	0.73		
Remlik	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to saturated zone	0.15		
11A:							
Kempsville	70	Not limited		Not limited		Not limited	
Emporia	30	Not limited		Somewhat limited		Not limited	
				Depth to saturated zone	0.73		
11B:							
Kempsville	60	Not limited		Not limited		Not limited	
Emporia	35	Not limited		Somewhat limited		Not limited	
				Depth to saturated zone	0.73		
11C:							
Kempsville	65	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.01	Slope	0.01	Slope	1.00
Emporia	30	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.01	Depth to saturated zone	0.73	Slope	1.00
				Slope	0.01		
12A:							
Myatt	70	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Slagle	20	Not limited		Somewhat limited		Not limited	
				Depth to saturated zone	0.15		

Table 12.—Building Site Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
13E:							
Nevarc	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Depth to saturated zone	1.00	Shrink-swell	0.50
		Depth to saturated zone	0.07	Shrink-swell	0.50	Depth to saturated zone	0.07
14:							
Pits, gravel	85	Not rated		Not rated		Not rated	
15A:							
Rappahannock	85	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
16B:							
Remlik	95	Not limited		Somewhat limited		Not limited	
				Depth to saturated zone	0.15		
16C:							
Remlik	95	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
				Depth to saturated zone	0.15		
16E:							
Remlik	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to saturated zone	0.15		
17D:							
Rion	95	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
18A:							
Riverview	80	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
				Depth to saturated zone	0.61		
19A:							
Roanoke	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
20B:							
Rumford	95	Not limited		Not limited		Not limited	
20C:							
Rumford	95	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.01	Slope	0.01	Slope	1.00

Table 12.—Building Site Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
20D:							
Rumford	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.84	Slope	0.84	Slope	1.00
21C:							
Slagle	55	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.04	Depth to saturated zone	0.15	Slope	1.00
				Slope	0.04		
Kempsville	30	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.04	Slope	0.04	Slope	1.00
22A:							
Slagle	90	Not limited		Somewhat limited		Not limited	
				Depth to saturated zone	0.15		
22B:							
Slagle	95	Not limited		Somewhat limited		Not limited	
				Depth to saturated zone	0.15		
23A:							
State	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
				Depth to saturated zone	0.15		
23B:							
State	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
				Depth to saturated zone	0.15		
23C:							
State	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Slope	0.01	Depth to saturated zone	0.15	Slope	1.00
				Slope	0.01		
24A:							
Suffolk	95	Not limited		Not limited		Not limited	
24B:							
Suffolk	95	Not limited		Not limited		Not limited	
25B:							
Tarboro	60	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
Bojac	35	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
				Depth to saturated zone	0.15		

Table 12.—Building Site Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
26A:							
Tomotley------------	55	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Roanoke-------------	30	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
27C:							
Udorthents----------	85	Not rated		Not rated		Not rated	
28A:							
Wehadkee------------	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
29A:							
Wickham-------------	95	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
29B:							
Wickham-------------	95	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
30E:							
Wateree-------------	75	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.97		
Rock outcrop--------	15	Not rated		Not rated		Not rated	
W:							
Water---------------	100	Not rated		Not rated		Not rated	

Table 12.—Building Site Development, Part II

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
1A:							
Altavista	90	Somewhat limited		Very limited		Somewhat limited	
		Flooding	0.20	Depth to saturated zone	1.00	Depth to saturated zone	0.19
		Depth to saturated zone	0.19	Cutbanks cave	1.00		
1B:							
Altavista	90	Somewhat limited		Very limited		Somewhat limited	
		Flooding	0.20	Depth to saturated zone	1.00	Depth to saturated zone	0.19
		Depth to saturated zone	0.19	Cutbanks cave	1.00		
2B:							
Appling	80	Not limited		Somewhat limited		Not limited	
				Too clayey	0.28		
				Cutbanks cave	0.10		
2C:							
Appling	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.37	Slope	0.37	Slope	0.37
				Too clayey	0.28		
				Cutbanks cave	0.10		
3A:							
Bama	90	Not limited		Somewhat limited		Not limited	
				Cutbanks cave	0.10		
3B:							
Bama	90	Not limited		Somewhat limited		Not limited	
				Cutbanks cave	0.10		
4A:							
Bibb	75	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Flooding	1.00	Cutbanks cave	1.00	Depth to saturated zone	1.00
				Flooding	0.80		
Chastain	20	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Flooding	1.00	Cutbanks cave	1.00	Depth to saturated zone	1.00
		Low strength	1.00	Flooding	0.80		
5B:							
Bojac	85	Somewhat limited		Very limited		Not limited	
		Flooding	0.20	Cutbanks cave	1.00		
				Depth to saturated zone	0.15		
6B:							
Cecil	90	Somewhat limited		Somewhat limited		Not limited	
		Low strength	0.10	Too clayey	0.72		
				Cutbanks cave	0.10		

Table 12.—Building Site Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
7A:							
Chastain------------	95	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Flooding	1.00	Cutbanks cave	1.00	Depth to saturated zone	1.00
8A:							
Chewacla------------	75	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.99
		Depth to saturated zone	0.99	Cutbanks cave	1.00	Flooding	0.60
				Flooding	0.60		
9C:							
Helena--------------	65	Very limited		Very limited		Somewhat limited	
		Shrink-swell	1.00	Depth to saturated zone	1.00	Slope	0.37
		Low strength	1.00	Slope	0.37	Depth to saturated zone	0.22
		Slope	0.37	Too clayey	0.28		
Appling-------------	20	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.37	Slope	0.37	Slope	0.37
				Too clayey	0.28		
				Cutbanks cave	0.10		
10E:							
Kempsville----------	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Cutbanks cave	0.10		
Emporia-------------	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Low strength	1.00	Depth to saturated zone	0.73		
				Cutbanks cave	0.10		
Remlik--------------	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Cutbanks cave	1.00	Droughty	0.03
				Depth to saturated zone	0.15		
11A:							
Kempsville----------	70	Not limited		Somewhat limited		Not limited	
				Cutbanks cave	0.10		
Emporia-------------	30	Very limited		Somewhat limited		Not limited	
		Low strength	1.00	Depth to saturated zone	0.73		
				Cutbanks cave	0.10		
11B:							
Kempsville----------	60	Not limited		Somewhat limited		Not limited	
				Cutbanks cave	0.10		
Emporia-------------	35	Very limited		Somewhat limited		Not limited	
		Low strength	1.00	Depth to saturated zone	0.73		
				Cutbanks cave	0.10		

Table 12.—Building Site Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
11C:							
Kempsville----------	65	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.01	Cutbanks cave	0.10	Slope	0.01
				Slope	0.01		
Emporia-------------	30	Very limited		Somewhat limited		Somewhat limited	
		Low strength	1.00	Depth to saturated zone	0.73	Slope	0.01
		Slope	0.01	Cutbanks cave	0.10		
				Slope	0.01		
12A:							
Myatt---------------	70	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Cutbanks cave	1.00		
Slagle--------------	20	Not limited		Somewhat limited		Not limited	
				Depth to saturated zone	0.15		
				Cutbanks cave	0.10		
13E:							
Nevarc--------------	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Low strength	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.03
		Shrink-swell	0.50	Too clayey	0.50		
14:							
Pits, gravel--------	85	Not rated		Not rated		Not rated	
15A:							
Rappahannock--------	85	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Flooding	1.00	Organic matter content	1.00	Organic matter content	1.00
16B:							
Remlik--------------	95	Not limited		Very limited		Somewhat limited	
				Cutbanks cave	1.00	Droughty	0.03
				Depth to saturated zone	0.15		
16C:							
Remlik--------------	95	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.37	Cutbanks cave	1.00	Slope	0.37
				Slope	0.37	Droughty	0.03
				Depth to saturated zone	0.15		
16E:							
Remlik--------------	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Cutbanks cave	1.00	Droughty	0.03
				Depth to saturated zone	0.15		

Table 12.—Building Site Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
17D:							
Rion	95	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Cutbanks cave	0.10		
18A:							
Riverview	80	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Cutbanks cave	1.00	Flooding	0.60
				Depth to saturated zone	0.61		
				Flooding	0.60		
19A:							
Roanoke	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Low strength	1.00	Cutbanks cave	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00		
20B:							
Rumford	95	Not limited		Very limited		Not limited	
				Cutbanks cave	1.00		
20C:							
Rumford	95	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.01	Cutbanks cave	1.00	Slope	0.01
				Slope	0.01		
20D:							
Rumford	90	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.84	Cutbanks cave	1.00	Slope	0.84
				Slope	0.84		
21C:							
Slagle	55	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.04	Depth to saturated zone	0.15	Slope	0.04
				Cutbanks cave	0.10		
				Slope	0.04		
Kempsville	30	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.04	Cutbanks cave	0.10	Slope	0.04
				Slope	0.04		
22A:							
Slagle	90	Not limited		Somewhat limited		Not limited	
				Depth to saturated zone	0.15		
				Cutbanks cave	0.10		
22B:							
Slagle	95	Not limited		Somewhat limited		Not limited	
				Depth to saturated zone	0.15		
				Cutbanks cave	0.10		
23A:							
State	90	Somewhat limited		Very limited		Not limited	
		Flooding	0.20	Cutbanks cave	1.00		
				Depth to saturated zone	0.15		

Table 12.—Building Site Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
23B:							
State	90	Somewhat limited		Very limited		Not limited	
		Flooding	0.20	Cutbanks cave	1.00		
				Depth to saturated zone	0.15		
23C:							
State	90	Somewhat limited		Very limited		Somewhat limited	
		Flooding	0.20	Cutbanks cave	1.00	Slope	0.01
		Slope	0.01	Depth to saturated zone	0.15		
				Slope	0.01		
24A:							
Suffolk	95	Not limited		Very limited		Not limited	
				Cutbanks cave	1.00		
24B:							
Suffolk	95	Not limited		Very limited		Not limited	
				Cutbanks cave	1.00		
25B:							
Tarboro	60	Somewhat limited		Very limited		Very limited	
		Flooding	0.20	Cutbanks cave	1.00	Droughty	1.00
						Too sandy	0.50
Bojac	35	Somewhat limited		Very limited		Not limited	
		Flooding	0.20	Cutbanks cave	1.00		
				Depth to saturated zone	0.15		
26A:							
Tomotley	55	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	0.40	Cutbanks cave	0.10		
Roanoke	30	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Low strength	1.00	Cutbanks cave	1.00		
		Shrink-swell	0.50	Too clayey	0.12		
27C:							
Udorthents	85	Not rated		Not rated		Not rated	
28A:							
Wehadkee	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Flooding	1.00	Flooding	0.80	Depth to saturated zone	1.00
		Low strength	0.78	Cutbanks cave	0.10		
29A:							
Wickham	95	Somewhat limited		Very limited		Not limited	
		Flooding	0.20	Cutbanks cave	1.00		
29B:							
Wickham	95	Somewhat limited		Very limited		Not limited	
		Flooding	0.20	Cutbanks cave	1.00		

Table 12.—Building Site Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
30E:							
Wateree-------------	75	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.97	Depth to bedrock	0.97
						Droughty	0.90
				Cutbanks cave	0.10		
Rock outcrop--------	15	Not rated		Not rated		Not rated	
W:							
Water---------------	100	Not rated		Not rated		Not rated	

Table 13.—Sanitary Facilities, Part I

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
1A:					
Altavista-----------	90	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
				Flooding	0.20
		Slow water movement	0.50		
1B:					
Altavista-----------	90	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
				Slope	0.32
		Slow water movement	0.50		
2B:					
Appling-------------	80	Somewhat limited		Somewhat limited	
		Slow water movement	0.50	Slope	0.68
				Seepage	0.50
2C:					
Appling-------------	90	Somewhat limited		Very limited	
		Slow water movement	0.50	Slope	1.00
				Seepage	0.50
		Slope	0.37		
3A:					
Bama----------------	90	Somewhat limited		Somewhat limited	
		Slow water movement	0.50	Seepage	0.50
3B:					
Bama----------------	90	Somewhat limited		Somewhat limited	
		Slow water movement	0.50	Seepage	0.50
				Slope	0.32
4A:					
Bibb----------------	75	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Seepage	1.00
				Depth to saturated zone	1.00
		Seepage, bottom layer	1.00		
Chastain------------	20	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Slow water movement	1.00	Seepage	1.00
				Depth to saturated zone	1.00
		Depth to saturated zone	1.00		

Table 13.—Sanitary Facilities, Part I—Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
5B:					
Bojac	85	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
		Depth to saturated zone	0.40	Flooding	0.20
		Flooding	0.20	Slope	0.08
6B:					
Cecil	90	Very limited		Somewhat limited	
		Seepage, bottom layer	1.00	Slope	0.68
		Slow water movement	0.50	Seepage	0.50
7A:					
Chastain	95	Very limited		Very limited	
		Flooding	1.00	Ponding	1.00
		Slow water movement	1.00	Flooding	1.00
		Ponding	1.00	Seepage	1.00
8A:					
Chewacla	75	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
9C:					
Helena	65	Very limited		Very limited	
		Slow water movement	1.00	Slope	1.00
		Depth to saturated zone	1.00	Seepage	0.92
		Slope	0.37	Depth to saturated zone	0.78
Appling	20	Somewhat limited		Very limited	
		Slow water movement	0.50	Slope	1.00
		Slope	0.37	Seepage	0.50
10E:					
Kempsville	45	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Slow water movement	0.72	Seepage	1.00
Emporia	25	Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00
		Slope	1.00	Seepage	0.50
		Slow water movement	0.50		

Table 13.—Sanitary Facilities, Part I—Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
10E:					
Remlik	20	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Slow water movement	0.50		
11A:					
Kempsville	70	Somewhat limited		Very limited	
		Slow water movement	0.72	Seepage	1.00
Emporia	30	Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Seepage	0.50
		Slow water movement	0.50		
11B:					
Kempsville	60	Somewhat limited		Very limited	
		Slow water movement	0.72	Seepage	1.00
				Slope	0.32
Emporia	35	Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Seepage	0.50
				Slope	0.32
		Slow water movement	0.50		
11C:					
Kempsville	65	Somewhat limited		Very limited	
		Slow water movement	0.72	Seepage	1.00
				Slope	1.00
		Slope	0.01		
Emporia	30	Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00
				Seepage	0.50
		Slow water movement	0.50		
		Slope	0.01		
12A:					
Myatt	70	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.68	Seepage	0.50
Slagle	20	Very limited		Very limited	
		Slow water movement	1.00	Seepage	1.00
		Seepage, bottom layer	1.00		
		Depth to saturated zone	0.40		

Table 13.—Sanitary Facilities, Part I—Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
13E:					
Nevarc	85	Very limited		Very limited	
		Slow water movement	1.00	Slope	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	0.44
		Slope	1.00		
14:					
Pits, gravel	85	Not rated		Not rated	
15A:					
Rappahannock	85	Very limited		Very limited	
		Flooding	1.00	Ponding	1.00
		Ponding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
16B:					
Remlik	95	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
		Slow water movement	0.50	Slope	0.32
		Depth to saturated zone	0.40		
16C:					
Remlik	95	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
		Slow water movement	0.50	Slope	1.00
		Depth to saturated zone	0.40		
16E:					
Remlik	90	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Slow water movement	0.50		
17D:					
Rion	95	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Slow water movement	0.50		
18A:					
Riverview	80	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Depth to saturated zone	0.99	Depth to saturated zone	0.71

Table 13.—Sanitary Facilities, Part I—Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
19A:					
Roanoke	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Ponding	1.00
20B:					
Rumford	95	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
				Slope	0.08
20C:					
Rumford	95	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
		Slope	0.01	Slope	1.00
20D:					
Rumford	90	Very limited		Very limited	
		Seepage, bottom layer	1.00	Slope	1.00
		Slope	0.84	Seepage	1.00
21C:					
Slagle	55	Very limited		Very limited	
		Slow water movement	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Slope	1.00
		Depth to saturated zone	0.40		
Kempsville	30	Somewhat limited		Very limited	
		Slow water movement	0.72	Seepage	1.00
		Slope	0.04	Slope	1.00
22A:					
Slagle	90	Very limited		Very limited	
		Slow water movement	1.00	Seepage	1.00
		Seepage, bottom layer	1.00		
		Depth to saturated zone	0.40		
22B:					
Slagle	95	Very limited		Very limited	
		Slow water movement	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Slope	0.32
		Depth to saturated zone	0.40		

Table 13.—Sanitary Facilities, Part I—Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
23A:					
State	90	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
		Slow water movement	0.50	Flooding	0.20
		Depth to saturated zone	0.40		
23B:					
State	90	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
		Slow water movement	0.50	Slope	0.32
		Depth to saturated zone	0.40	Flooding	0.20
23C:					
State	90	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
		Slow water movement	0.50	Slope	1.00
		Depth to saturated zone	0.40	Flooding	0.20
24A:					
Suffolk	95	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
		Slow water movement	0.50		
24B:					
Suffolk	95	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
		Slow water movement	0.50	Slope	0.32
25B:					
Tarboro	60	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Flooding	0.20
		Flooding	0.20	Slope	0.08
Bojac	35	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
		Depth to saturated zone	0.40	Flooding	0.20
		Flooding	0.20	Slope	0.08

Table 13.—Sanitary Facilities, Part I—Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
26A:					
Tomotley------------	55	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.50	Seepage	0.99
		Flooding	0.40	Flooding	0.40
Roanoke-------------	30	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Flooding	0.40
27C:					
Udorthents----------	85	Not rated		Not rated	
28A:					
Wehadkee------------	85	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.50	Seepage	0.50
29A:					
Wickham-------------	95	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
		Slow water movement	0.50	Flooding	0.20
		Flooding	0.20		
29B:					
Wickham-------------	95	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
		Slow water movement	0.50	Slope	0.32
		Flooding	0.20	Flooding	0.20
30E:					
Wateree-------------	75	Very limited		Very limited	
		Slope	1.00	Depth to soft bedrock	1.00
		Seepage, bottom layer	1.00	Slope	1.00
		Depth to bedrock	1.00	Seepage	1.00
Rock outcrop--------	15	Not rated		Not rated	
W:					
Water---------------	100	Not rated		Not rated	

Table 13.—Sanitary Facilities, Part II

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1A:							
Altavista	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too sandy	1.00
		Too sandy	1.00	Flooding	0.20	Seepage	1.00
		Seepage, bottom layer	1.00			Depth to saturated zone	0.86
1B:							
Altavista	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too sandy	1.00
		Too sandy	1.00	Flooding	0.20	Seepage	1.00
		Seepage, bottom layer	1.00			Depth to saturated zone	0.86
2B:							
Appling	80	Somewhat limited		Not limited		Somewhat limited	
		Too clayey	0.50			Too clayey	0.50
2C:							
Appling	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Too clayey	0.50	Slope	0.37	Too clayey	0.50
		Slope	0.37			Slope	0.37
3A:							
Bama	90	Not limited		Not limited		Not limited	
3B:							
Bama	90	Not limited		Not limited		Not limited	
4A:							
Bibb	75	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00		
		Seepage, bottom layer	1.00				
Chastain	20	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too sandy	1.00
		Seepage, bottom layer	1.00	Seepage	1.00	Seepage	1.00
5B:							
Bojac	85	Very limited		Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Seepage	0.50
		Seepage, bottom layer	1.00	Seepage	1.00		
		Flooding	0.20	Flooding	0.20		

Table 13.—Sanitary Facilities, Part II—Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
6B:							
Cecil	90	Very limited		Not limited		Somewhat limited	
		Seepage, bottom layer	1.00			Too clayey	0.50
		Too clayey	0.50				
7A:							
Chastain	95	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Too sandy	1.00
8A:							
Chewacla	75	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	0.50
		Seepage, bottom layer	1.00				
9C:							
Helena	65	Very limited		Somewhat limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	0.78	Hard to compact	1.00
		Too clayey	0.50	Slope	0.37	Depth to saturated zone	0.88
		Slope	0.37			Too clayey	0.50
Appling	20	Somewhat limited		Somewhat limited		Somewhat limited	
		Too clayey	0.50	Slope	0.37	Too clayey	0.50
		Slope	0.37			Slope	0.37
10E:							
Kempsville	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too clayey	0.50			Too clayey	0.50
Emporia	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to saturated zone	0.02				
Remlik	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00	Seepage	0.21
11A:							
Kempsville	70	Somewhat limited		Not limited		Somewhat limited	
		Too clayey	0.50			Too clayey	0.50
Emporia	30	Somewhat limited		Not limited		Not limited	
		Depth to saturated zone	0.02				
11B:							
Kempsville	60	Somewhat limited		Not limited		Somewhat limited	
		Too clayey	0.50			Too clayey	0.50

Table 13.—Sanitary Facilities, Part II—Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
11B:							
Emporia	35	Somewhat limited		Not limited		Not limited	
		Depth to saturated zone	0.02				
11C:							
Kempsville	65	Somewhat limited		Somewhat limited		Somewhat limited	
		Too clayey	0.50	Slope	0.01	Too clayey	0.50
		Slope	0.01			Slope	0.01
Emporia	30	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.02	Slope	0.01	Slope	0.01
		Slope	0.01				
12A:							
Myatt	70	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Slagle	20	Very limited		Not limited		Not limited	
		Seepage, bottom layer	1.00				
13E:							
Nevarc	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too clayey	1.00	Depth to saturated zone	0.44	Too clayey	1.00
		Depth to saturated zone	0.95			Hard to compact	1.00
14:							
Pits, gravel	85	Not rated		Not rated		Not rated	
15A:							
Rappahannock	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Organic matter content	1.00
16B:							
Remlik	95	Very limited		Very limited		Somewhat limited	
		Seepage, bottom layer	1.00	Seepage	1.00	Seepage	0.21
16C:							
Remlik	95	Very limited		Very limited		Somewhat limited	
		Seepage, bottom layer	1.00	Seepage	1.00	Slope	0.37
		Slope	0.37	Slope	0.37	Seepage	0.21
16E:							
Remlik	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00	Seepage	0.21

Table 13.—Sanitary Facilities, Part II—Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
17D:							
Rion	95	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00		
18A:							
Riverview	80	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Flooding	1.00	Seepage	0.50
		Depth to saturated zone	1.00	Depth to saturated zone	1.00		
		Seepage, bottom layer	1.00	Seepage	1.00		
19A:							
Roanoke	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	1.00	Ponding	1.00	Too clayey	1.00
		Seepage, bottom layer	1.00			Hard to compact	1.00
20B:							
Rumford	95	Very limited		Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00	Seepage	1.00
20C:							
Rumford	95	Very limited		Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00	Seepage	1.00
				Slope	0.01	Slope	0.01
		Slope	0.01				
20D:							
Rumford	90	Very limited		Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00	Seepage	1.00
		Slope	0.84	Slope	0.84	Slope	0.84
21C:							
Slagle	55	Very limited		Somewhat limited		Somewhat limited	
		Seepage, bottom layer	1.00	Slope	0.04	Slope	0.04
		Slope	0.04				
Kempsville	30	Somewhat limited		Somewhat limited		Somewhat limited	
		Too clayey	0.50	Slope	0.04	Too clayey	0.50
		Slope	0.04			Slope	0.04
22A:							
Slagle	90	Very limited		Not limited		Not limited	
		Seepage, bottom layer	1.00				
22B:							
Slagle	95	Very limited		Not limited		Not limited	
		Seepage, bottom layer	1.00				

Table 13.—Sanitary Facilities, Part II—Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
23A:							
State	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Seepage	1.00	Too sandy	0.50
		Too sandy	0.50	Flooding	0.20		
23B:							
State	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Seepage	1.00	Too sandy	0.50
		Too sandy	0.50	Flooding	0.20		
23C:							
State	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Seepage	1.00	Too sandy	0.50
		Too sandy	0.50	Flooding	0.20	Slope	0.01
24A:							
Suffolk	95	Very limited		Not limited		Not limited	
		Seepage, bottom layer	1.00				
24B:							
Suffolk	95	Very limited		Not limited		Not limited	
		Seepage, bottom layer	1.00				
25B:							
Tarboro	60	Very limited		Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00	Flooding	0.20	Seepage	1.00
		Flooding	0.20				
Bojac	35	Very limited		Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Seepage	0.50
		Seepage, bottom layer	1.00	Seepage	1.00		
		Flooding	0.20	Flooding	0.20		
26A:							
Tomotley	55	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	0.40	Flooding	0.40		
Roanoke	30	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	1.00	Flooding	0.40	Too clayey	1.00
		Seepage, bottom layer	1.00			Hard to compact	1.00

Table 13.—Sanitary Facilities, Part II—Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
27C:							
Udorthents	85	Not rated		Not rated		Not rated	
28A:							
Wehadkee	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00		
29A:							
Wickham	95	Very limited		Very limited		Somewhat limited	
		Seepage, bottom layer	1.00	Seepage	1.00	Too sandy	0.50
		Too sandy	0.50	Flooding	0.20	Seepage	0.21
		Flooding	0.20				
29B:							
Wickham	95	Very limited		Very limited		Somewhat limited	
		Seepage, bottom layer	1.00	Seepage	1.00	Too sandy	0.50
		Too sandy	0.50	Flooding	0.20	Seepage	0.21
		Flooding	0.20				
30E:							
Wateree	75	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Seepage	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
Rock outcrop	15	Not rated		Not rated		Not rated	
W:							
Water	100	Not rated		Not rated		Not rated	

Table 14.—Construction Materials, Part I

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The ratings given for the thickest layer are for the thickest layer above and excluding the bottom layer. The numbers in the value columns range from 0.00 to 0.99. The greater the value, the greater the likelihood that the bottom layer or thickest layer of the soil is a source of sand or gravel. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
1A:					
Altavista	90	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.38
1B:					
Altavista	90	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.38
2B:					
Appling	80	Poor		Poor	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.00
2C:					
Appling	90	Poor		Poor	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.00
3A:					
Bama	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
3B:					
Bama	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
4A:					
Bibb	75	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.03
		Thickest layer	0.00	Bottom layer	0.08
Chastain	20	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.42
5B:					
Bojac	85	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.26
6B:					
Cecil	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

Table 14.—Construction Materials, Part I—Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class	Value	Potential source of sand: Rating class	Value
7A:					
Chastain------------	95	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.42
8A:					
Chewacla------------	75	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.38
9C:					
Helena--------------	65	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Appling-------------	20	Poor		Poor	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.00
10E:					
Kempsville----------	45	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Emporia-------------	25	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Remlik--------------	20	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.03
		Thickest layer	0.00	Thickest layer	0.08
11A:					
Kempsville----------	70	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Emporia-------------	30	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
11B:					
Kempsville----------	60	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Emporia-------------	35	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
11C:					
Kempsville----------	65	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Emporia-------------	30	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

Table 14.—Construction Materials, Part I—Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class	Value	Potential source of sand: Rating class	Value
12A:					
Myatt	70	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.74
Slagle	20	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
13E:					
Nevarc	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
14:					
Pits, gravel	85	Not rated		Not rated	
15A:					
Rappahannock	85	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.02
16B:					
Remlik	95	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.03
		Thickest layer	0.00	Thickest layer	0.08
16C:					
Remlik	95	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.03
		Thickest layer	0.00	Thickest layer	0.08
16E:					
Remlik	90	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.03
		Thickest layer	0.00	Thickest layer	0.08
17D:					
Rion	95	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.02
18A:					
Riverview	80	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.04
		Thickest layer	0.00	Bottom layer	0.13
19A:					
Roanoke	85	Poor		Poor	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.00
20B:					
Rumford	95	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.05
		Thickest layer	0.00	Bottom layer	0.64
20C:					
Rumford	95	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.05
		Thickest layer	0.00	Bottom layer	0.64

Table 14.—Construction Materials, Part I—Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
20D:					
Rumford-------------	90	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.05
		Thickest layer	0.00	Bottom layer	0.64
21C:					
Slagle--------------	55	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Kempsville----------	30	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
22A:					
Slagle--------------	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
22B:					
Slagle--------------	95	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
23A:					
State---------------	90	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.03
23B:					
State---------------	90	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.03
23C:					
State---------------	90	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.03
24A:					
Suffolk-------------	95	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.06
24B:					
Suffolk-------------	95	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.06
25B:					
Tarboro-------------	60	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.34
		Thickest layer	0.00	Bottom layer	0.69
Bojac---------------	35	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.26

Table 14.—Construction Materials, Part I—Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
26A:					
Tomotley------------	55	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.04
Roanoke-------------	30	Poor		Poor	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.00
27C:					
Udorthents----------	85	Not rated		Not rated	
28A:					
Wehadkee------------	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
29A:					
Wickham-------------	95	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.06
29B:					
Wickham-------------	95	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.06
30E:					
Wateree-------------	75	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.04
		Thickest layer	0.00	Thickest layer	0.04
Rock outcrop--------	15	Not rated		Not rated	
W:					
Water---------------	100	Not rated		Not rated	

Table 14.—Construction Materials, Part II

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 0.99. The smaller the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1A:							
Altavista-----------	90	Fair		Fair		Fair	
		Organic matter content low	0.02	Wetness depth	0.53	Wetness depth	0.53
		Too acid	0.16			Too acid	0.76
1B:							
Altavista-----------	90	Fair		Fair		Fair	
		Organic matter content low	0.02	Wetness depth	0.53	Wetness depth	0.53
		Too acid	0.16			Too acid	0.76
2B:							
Appling-------------	80	Poor		Good		Poor	
		Too clayey	0.00			Too clayey	0.00
		Organic matter content low	0.12			Too acid	0.88
		Too acid	0.32				
2C:							
Appling-------------	90	Poor		Good		Poor	
		Too clayey	0.00			Too clayey	0.00
		Organic matter content low	0.12			Slope	0.63
		Too acid	0.32			Too acid	0.88
3A:							
Bama----------------	90	Fair		Good		Fair	
		Organic matter content low	0.02			Too acid	0.68
		Too acid	0.50				
3B:							
Bama----------------	90	Fair		Good		Fair	
		Organic matter content low	0.02			Too acid	0.68
		Too acid	0.50				
4A:							
Bibb----------------	75	Fair		Poor		Poor	
		Too acid	0.54	Wetness depth	0.00	Wetness depth	0.00
						Too acid	0.98
Chastain------------	20	Fair		Poor		Poor	
		Too clayey	0.08	Wetness depth	0.00	Wetness depth	0.00
		Too acid	0.54			Too clayey	0.08
		Water erosion	0.99			Too acid	0.98
5B:							
Bojac---------------	85	Fair		Good		Good	
		Organic matter content low	0.12				
		Too acid	0.99				

Table 14.—Construction Materials, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
6B:							
Cecil	90	Poor		Fair		Poor	
		Too clayey	0.00	Low strength	0.10	Too clayey	0.00
		Organic matter content low	0.12			Too acid	0.88
		Too acid	0.32				
7A:							
Chastain	95	Fair		Poor		Poor	
		Too clayey	0.08	Wetness depth	0.00	Wetness depth	0.00
		Too acid	0.54			Too clayey	0.08
		Water erosion	0.99			Too acid	0.98
8A:							
Chewacla	75	Fair		Poor		Poor	
		Too acid	0.68	Wetness depth	0.00	Wetness depth	0.00
		Water erosion	0.99				
9C:							
Helena	65	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Too acid	0.08	Wetness depth	0.50	Wetness depth	0.50
		Organic matter content low	0.12	Shrink-swell	0.54	Slope	0.63
Appling	20	Poor		Good		Poor	
		Too clayey	0.00			Too clayey	0.00
		Organic matter content low	0.12			Slope	0.63
		Too acid	0.32			Too acid	0.88
10E:							
Kempsville	45	Fair		Poor		Poor	
		Organic matter content low	0.12	Slope	0.00	Slope	0.00
		Too acid	0.54			Too acid	0.98
Emporia	25	Fair		Poor		Poor	
		Organic matter content low	0.12	Slope	0.00	Slope	0.00
				Low strength	0.00	Too acid	0.98
		Too acid	0.54				
Remlik	20	Poor		Poor		Poor	
		Wind erosion	0.00	Slope	0.00	Slope	0.00
		Organic matter content low	0.02			Too sandy	0.30
		Too sandy	0.30			Too acid	0.98
11A:							
Kempsville	70	Fair		Good		Fair	
		Organic matter content low	0.12			Too acid	0.98
		Too acid	0.54				
Emporia	30	Fair		Poor		Fair	
		Organic matter content low	0.12	Low strength	0.00	Too acid	0.98
		Too acid	0.54				

Table 14.—Construction Materials, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
11B:							
Kempsville----------	60	Fair		Good		Fair	
		Organic matter content low	0.12			Too acid	0.98
		Too acid	0.54				
Emporia-------------	35	Fair		Poor		Fair	
		Organic matter content low	0.12	Low strength	0.00	Too acid	0.98
		Too acid	0.54				
11C:							
Kempsville----------	65	Fair		Good		Fair	
		Organic matter content low	0.12			Too acid	0.98
		Too acid	0.54				
Emporia-------------	30	Fair		Poor		Fair	
		Organic matter content low	0.12	Low strength	0.00	Too acid	0.98
		Too acid	0.54				
12A:							
Myatt---------------	70	Fair		Poor		Poor	
		Too acid	0.16	Wetness depth	0.00	Wetness depth	0.00
		Organic matter content low	0.50			Too acid	0.98
Slagle--------------	20	Fair		Good		Fair	
		Too acid	0.12			Too acid	0.59
		Organic matter content low	0.12				
13E:							
Nevarc--------------	85	Poor		Poor		Poor	
		Too clayey	0.00	Slope	0.00	Slope	0.00
		Too acid	0.01	Low strength	0.00	Too clayey	0.00
		Organic matter content low	0.12	Wetness depth	0.76	Too acid	0.68
14:							
Pits, gravel--------	85	Not rated		Not rated		Not rated	
15A:							
Rappahannock--------	85	Fair		Poor		Not rated	
		Salinity	0.97	Wetness depth	0.00		
16B:							
Remlik--------------	95	Poor		Good		Fair	
		Wind erosion	0.00			Too sandy	0.30
		Organic matter content low	0.02			Too acid	0.98
		Too sandy	0.30				
16C:							
Remlik--------------	95	Poor		Good		Fair	
		Wind erosion	0.00			Too sandy	0.30
		Organic matter content low	0.02			Slope	0.63
		Too sandy	0.30			Too acid	0.98

Table 14.—Construction Materials, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
16E:							
Remlik--------------	90	Poor		Poor		Poor	
		Wind erosion	0.00	Slope	0.00	Slope	0.00
		Organic matter content low	0.02			Too sandy	0.30
		Too sandy	0.30			Too acid	0.98
17D:							
Rion----------------	95	Fair		Fair		Poor	
		Organic matter content low	0.12	Slope	0.50	Slope	0.00
		Too acid	0.68				
18A:							
Riverview-----------	80	Fair		Good		Good	
		Organic matter content low	0.50				
		Too acid	0.68				
19A:							
Roanoke-------------	85	Poor		Poor		Poor	
		Too clayey	0.00	Wetness depth	0.00	Wetness depth	0.00
		Too acid	0.16	Low strength	0.00	Too clayey	0.00
		Organic matter content low	0.50	Shrink-swell	0.96	Too acid	0.98
20B:							
Rumford-------------	95	Poor		Good		Fair	
		Wind erosion	0.00			Too acid	0.98
		Organic matter content low	0.08			Too sandy	0.99
		Too acid	0.54				
20C:							
Rumford-------------	95	Poor		Good		Fair	
		Wind erosion	0.00			Too acid	0.98
		Organic matter content low	0.08			Too sandy	0.99
		Too acid	0.54				
20D:							
Rumford-------------	90	Poor		Good		Fair	
		Wind erosion	0.00			Slope	0.16
		Organic matter content low	0.08			Too acid	0.98
		Too acid	0.54			Too sandy	0.99
21C:							
Slagle--------------	55	Fair		Good		Fair	
		Too acid	0.12			Too acid	0.59
		Organic matter content low	0.12			Slope	0.96
Kempsville----------	30	Fair		Good		Fair	
		Organic matter content low	0.12			Slope	0.96
		Too acid	0.54			Too acid	0.98

Table 14.—Construction Materials, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
22A:							
Slagle	90	Fair		Good		Fair	
		Too acid	0.12			Too acid	0.59
		Organic matter content low	0.12				
22B:							
Slagle	95	Fair		Good		Fair	
		Too acid	0.12			Too acid	0.59
		Organic matter content low	0.12				
23A:							
State	90	Fair		Good		Fair	
		Organic matter content low	0.02			Too acid	0.68
		Too acid	0.50				
23B:							
State	90	Fair		Good		Fair	
		Organic matter content low	0.02			Too acid	0.68
		Too acid	0.50				
23C:							
State	90	Fair		Good		Fair	
		Organic matter content low	0.02			Too acid	0.68
		Too acid	0.50				
24A:							
Suffolk	95	Fair		Good		Good	
		Organic matter content low	0.12				
		Too acid	0.84				
24B:							
Suffolk	95	Fair		Good		Good	
		Organic matter content low	0.12				
		Too acid	0.84				
25B:							
Tarboro	60	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Wind erosion	0.00				
		Droughty	0.00				
Bojac	35	Fair		Good		Good	
		Organic matter content low	0.12				
		Too acid	0.99				
26A:							
Tomotley	55	Fair		Poor		Poor	
		Too acid	0.12	Wetness depth	0.00	Wetness depth	0.00
		Organic matter content low	0.88			Too acid	0.59

Table 14.—Construction Materials, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
26A:							
Roanoke-------------	30	Poor		Poor		Poor	
		Too clayey	0.00	Wetness depth	0.00	Wetness depth	0.00
		Too acid	0.16	Low strength	0.00	Too clayey	0.00
		Organic matter content low	0.50	Shrink-swell	0.96	Too acid	0.98
27C:							
Udorthents----------	85	Not rated		Not rated		Not rated	
28A:							
Wehadkee------------	85	Fair		Poor		Poor	
		Too acid	0.16	Wetness depth	0.00	Wetness depth	0.00
		Organic matter content low	0.50	Low strength	0.22	Too acid	0.68
29A:							
Wickham-------------	95	Fair		Good		Fair	
		Organic matter content low	0.02			Too acid	0.98
		Too acid	0.54				
29B:							
Wickham-------------	95	Fair		Good		Fair	
		Organic matter content low	0.02			Too acid	0.98
		Too acid	0.54				
30E:							
Wateree-------------	75	Poor		Poor		Poor	
		Droughty	0.00	Slope	0.00	Slope	0.00
		Depth to bedrock	0.03	Depth to bedrock	0.00	Depth to bedrock	0.03
		Organic matter content low	0.12			Too acid	0.98
Rock outcrop--------	15	Not rated		Not rated		Not rated	
W:							
Water---------------	100	Not rated		Not rated		Not rated	

Table 15.—Water Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
1A:							
Altavista	90	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	0.99	Cutbanks cave	1.00
				Seepage	0.38	Depth to saturated zone	0.01
1B:							
Altavista	90	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	0.99	Cutbanks cave	1.00
		Slope	0.08	Seepage	0.38	Depth to saturated zone	0.01
2B:							
Appling	80	Very limited		Very limited		Very limited	
		Seepage	1.00	Piping	1.00	Depth to water	1.00
		Slope	0.32	Seepage	0.01		
2C:							
Appling	90	Very limited		Very limited		Very limited	
		Slope	1.00	Piping	1.00	Depth to water	1.00
		Seepage	1.00	Seepage	0.01		
3A:							
Bama	90	Somewhat limited		Not limited		Very limited	
		Seepage	0.70			Depth to water	1.00
3B:							
Bama	90	Somewhat limited		Not limited		Very limited	
		Seepage	0.70			Depth to water	1.00
		Slope	0.08				
4A:							
Bibb	75	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	1.00
				Seepage	0.08		
Chastain	20	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	1.00
				Seepage	0.42		
5B:							
Bojac	85	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.26	Depth to water	1.00
6B:							
Cecil	90	Very limited		Very limited		Very limited	
		Seepage	1.00	Piping	1.00	Depth to water	1.00
		Slope	0.32				

Table 15.—Water Management—Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
7A:							
Chastain------------	95	Very limited		Very limited		Very limited	
		Seepage	1.00	Ponding	1.00	Cutbanks cave	1.00
				Depth to saturated zone	1.00		
				Seepage	0.42		
8A:							
Chewacla------------	75	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	1.00
				Seepage	0.38		
9C:							
Helena--------------	65	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to saturated zone	0.99	Depth to water	1.00
		Seepage	0.95				
				Piping	0.21		
Appling-------------	20	Very limited		Very limited		Very limited	
		Slope	1.00	Piping	1.00	Depth to water	1.00
		Seepage	1.00	Seepage	0.01		
10E:							
Kempsville----------	45	Very limited		Not limited		Very limited	
		Slope	1.00			Depth to water	1.00
		Seepage	0.70				
Emporia-------------	25	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.57	Depth to water	1.00
		Seepage	0.70	Depth to saturated zone	0.02		
Remlik--------------	20	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.08	Depth to water	1.00
		Slope	1.00				
11A:							
Kempsville----------	70	Somewhat limited		Not limited		Very limited	
		Seepage	0.70			Depth to water	1.00
Emporia-------------	30	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.70	Piping	0.57	Depth to water	1.00
				Depth to saturated zone	0.02		
11B:							
Kempsville----------	60	Somewhat limited		Not limited		Very limited	
		Seepage	0.70			Depth to water	1.00
		Slope	0.08				
Emporia-------------	35	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.70	Piping	0.57	Depth to water	1.00
		Slope	0.08	Depth to saturated zone	0.02		
11C:							
Kempsville----------	65	Very limited		Not limited		Very limited	
		Slope	1.00			Depth to water	1.00
		Seepage	0.70				

Table 15.—Water Management—Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
11C:							
Emporia	30	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.57	Depth to water	1.00
		Seepage	0.70	Depth to saturated zone	0.02		
12A:							
Myatt	70	Somewhat limited		Very limited		Very limited	
		Seepage	0.57	Depth to saturated zone	1.00	Cutbanks cave	1.00
						Slow refill	0.30
				Seepage	0.74		
Slagle	20	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Piping	0.91	Depth to water	1.00
13E:							
Nevarc	85	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Depth to saturated zone	0.95	Depth to water	1.00
		Seepage	0.01				
				Hard to pack	0.59		
14:							
Pits, gravel	85	Not rated		Not rated		Not rated	
15A:							
Rappahannock	85	Somewhat limited		Not rated		Somewhat limited	
		Seepage	0.70			Salinity and saturated zone	0.35
						Slow refill	0.30
						Cutbanks cave	0.10
16B:							
Remlik	95	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.08	Depth to water	1.00
		Slope	0.08				
16C:							
Remlik	95	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.08	Depth to water	1.00
		Slope	1.00				
16E:							
Remlik	90	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.08	Depth to water	1.00
		Slope	1.00				
17D:							
Rion	95	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.02	Depth to water	1.00
		Slope	1.00				
18A:							
Riverview	80	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.13	Cutbanks cave	1.00
						Depth to saturated zone	0.81

Table 15.—Water Management—Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
19A:							
Roanoke-------------	85	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	1.00
				Ponding	1.00		
20B:							
Rumford-------------	95	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.64	Depth to water	1.00
20C:							
Rumford-------------	95	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.64	Depth to water	1.00
		Slope	1.00				
20D:							
Rumford-------------	90	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.64	Depth to water	1.00
		Slope	1.00				
21C:							
Slagle--------------	55	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Piping	0.91	Depth to water	1.00
		Slope	1.00				
Kempsville----------	30	Very limited		Not limited		Very limited	
		Slope	1.00			Depth to water	1.00
		Seepage	0.70				
22A:							
Slagle--------------	90	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Piping	0.91	Depth to water	1.00
22B:							
Slagle--------------	95	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Piping	0.91	Depth to water	1.00
		Slope	0.08				
23A:							
State---------------	90	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.03	Depth to water	1.00
23B:							
State---------------	90	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.03	Depth to water	1.00
		Slope	0.08				
23C:							
State---------------	90	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.03	Depth to water	1.00
		Slope	1.00				
24A:							
Suffolk-------------	95	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.06	Depth to water	1.00
24B:							
Suffolk-------------	95	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.06	Depth to water	1.00
		Slope	0.08				

Table 15.—Water Management—Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
25B:							
Tarboro	60	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.69	Depth to water	1.00
Bojac	35	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.26	Depth to water	1.00
26A:							
Tomotley	55	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	0.10
				Seepage	0.04		
Roanoke	30	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	1.00
				Seepage	0.01		
27C:							
Udorthents	85	Not rated		Not rated		Not rated	
28A:							
Wehadkee	85	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.70	Depth to saturated zone	1.00	Cutbanks cave	0.10
				Piping	0.59		
29A:							
Wickham	95	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.06	Depth to water	1.00
29B:							
Wickham	95	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.06	Depth to water	1.00
		Slope	0.08				
30E:							
Wateree	75	Very limited		Very limited		Very limited	
		Seepage	1.00	Thin layer	0.99	Depth to water	1.00
		Slope	1.00	Seepage	0.04		
		Depth to bedrock	0.37				
Rock outcrop	15	Not rated		Not rated		Not rated	
W:							
Water	100	Not rated		Not rated		Not rated	

Table 16.—Engineering Properties

(Absence of an entry indicates that data were not estimated)

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
1A:												
Altavista-------	0-16	Loamy sand, sandy loam, fine sandy loam, loam	SC-SM, SM	A-2-4	0	0	95-100	90-100	45-95	15-75	17-29	2-6
	16-40	Sandy clay loam, clay loam, loam, fine sandy loam, sandy loam	SC-SM, SC, CL	A-6, A-7	0	0	95-100	90-100	65-100	36-80	27-44	12-25
	40-65	Sand, fine sand, loamy sand, sandy loam, fine sandy loam	CL, SC-SM, SC, SM	A-1-b, A-2-4, A-3, A-4	0	0	95-100	80-100	40-85	5-55	0-31	NP-13
1B:												
Altavista-------	0-16	Loamy sand, sandy loam, fine sandy loam, loam	SM, SC-SM	A-2-4	0	0	95-100	90-100	45-95	15-75	17-29	2-6
	16-40	Sandy clay loam, clay loam, loam, fine sandy loam, sandy loam	CL, SC, SC-SM	A-6, A-7	0	0	95-100	90-100	65-100	36-80	27-44	12-25
	40-65	Sand, loamy sand, fine sand, sandy loam, fine sandy loam	SC-SM, CL, SM, SC	A-4, A-3, A-1-b, A-2-4	0	0	95-100	80-100	40-85	5-55	0-31	NP-13
2B:												
Appling---------	0-10	Sandy loam	SC-SM, SM	A-2-4	0	0-5	86-100	80-100	55-91	15-35	9-20	NP-2
	10-42	Sandy clay, clay loam, clay	MH, ML	A-4, A-7	0	0-5	95-100	90-100	70-95	51-80	31-51	5-12
	42-60	Sandy clay, clay loam, sandy clay loam	CL-ML, SC-SM, ML	A-6, A-4	0	0-5	95-100	85-100	70-90	40-75	20-39	2-11
	60-72	Sandy clay loam, sandy loam	CL, SW-SM, SM, SC	A-2-4, A-7-6, A-4	0	0	80-100	75-100	40-100	3-80	0-49	NP-28
2C:												
Appling---------	0-10	Sandy loam	SM, SC-SM	A-2-4	0	0-5	86-100	80-100	55-91	15-35	9-20	NP-2
	10-42	Sandy clay, clay loam, clay	ML, MH	A-4, A-7	0	0-5	95-100	90-100	70-95	51-80	31-51	5-12
	42-60	Sandy clay, clay loam, sandy clay loam	ML, CL-ML, SC-SM	A-6, A-4	0	0-5	95-100	85-100	70-90	40-75	20-39	2-11
	60-72	Sandy clay loam, sandy loam	SW-SM, CL, SC, SM	A-2-4, A-7-6, A-4	0	0	80-100	75-100	40-100	3-80	0-49	NP-28

Table 16.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
3A:												
Bama------------	0-13	Loam, fine sandy loam, sandy loam	CL-ML, SC-SM, SM, ML, SC	A-4	0	0	95-100	80-100	50-95	25-75	19-34	3-15
	13-26	Loam, sandy clay loam, fine sandy loam, sandy loam	CL, SC-SM, SC	A-6	0	0	95-100	80-100	50-95	25-75	27-42	12-22
	26-70	Sandy clay loam, clay loam, loam	SC-SM, CL, SC	A-6, A-4	0	0	95-100	80-100	65-100	30-80	24-44	9-25
3B:												
Bama------------	0-13	Loam, fine sandy loam, sandy loam	CL-ML, ML, SC, SC-SM, SM	A-4	0	0	95-100	80-100	50-95	25-75	19-34	3-15
	13-26	Loam, sandy clay loam, fine sandy loam, sandy loam	CL, SC, SC-SM	A-6	0	0	95-100	80-100	50-95	25-75	27-42	12-22
	26-70	Sandy clay loam, clay loam, loam	CL, SC, SC-SM	A-6, A-4	0	0	95-100	80-100	65-100	30-80	24-44	9-25
4A:												
Bibb------------	0-15	Loamy sand, sand, sandy loam, fine sandy loam, loam, silt loam	SC-SM, SM	A-3, A-2-4, A-1-b	0	0	98-100	95-100	50-100	5-90	0-31	NP-10
	15-42	Sandy loam, fine sandy loam, loam, silt loam, gravelly sandy loam	SC-SM, CL-ML	A-1-b, A-4, A-2-4	0	0	85-100	75-100	40-100	20-90	20-31	4-12
	42-65	Loamy sand, loamy fine sand, sand, sandy loam, fine sandy loam, loam, silt loam, gravelly sand	SC-SM, SM, CL-ML, ML	A-1-b, A-4, A-2-4, A-3	0	0	85-100	75-100	40-100	4-90	0-31	NP-12
Chastain--------	0-13	Silt loam, loam	CL, CL-ML	A-6, A-4	0	0	100	100	90-95	60-90	20-38	4-14
	13-36	Clay loam, silty clay loam, silty clay	MH, ML, CH, CL	A-7, A-6	0	0	100	100	90-100	70-95	38-61	14-27
	36-80	Sand, loamy sand, fine sand	SC-SM, SP-SM, SP, SM	A-3, A-2-4	0	0	90-100	85-100	51-90	4-25	9-16	NP-2
5B:												
Bojac-----------	0-12	Fine sandy loam, sandy loam, loamy sand	CL-ML, ML, SC-SM, SM	A-2-4, A-4	0	0	95-100	92-100	45-85	15-55	0-25	NP-4
	12-46	Fine sandy loam, loam, sandy loam	CL, SC	A-2-4, A-4	0	0	95-100	92-100	55-95	25-75	21-28	6-10
	46-65	Fine sand, stratified coarse sand to loamy fine sand	SM, SP, SW-SM, SC-SM	A-3, A-1, A-2-4	0	0	90-100	80-100	40-85	4-45	0-21	NP-4

Table 16.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
6B:												
Cecil-----------	0-9	Sandy loam, fine sandy loam	SM, SC-SM	A-2-4, A-4	0	0-5	84-100	80-100	67-90	26-42	9-20	NP-2
	9-14	Sandy clay loam, clay loam	ML, SC-SM, SM	A-4	0	0-5	75-100	75-100	68-95	38-81	20-31	2-5
	14-63	Clay, clay loam	ML, MH	A-5, A-7	0	0-5	97-100	92-100	72-100	55-95	31-56	5-14
	63-83	Loam, clay loam, sand	SM, SC-SM, SW-SM, CL	A-6, A-7-6, A-2, A-4	0	0	80-100	75-100	40-100	3-80	7-45	NP-18
7A:												
Chastain--------	0-13	Silt loam, loam	CL-ML, CL	A-4, A-6	0	0	100	100	90-95	60-90	20-38	4-14
	13-36	Clay loam, silty clay loam, silty clay	ML, MH, CL, CH	A-7, A-6	0	0	100	100	90-100	70-95	38-61	14-27
	36-80	Sand, loamy sand, fine sand	SP, SC-SM, SM, SP-SM	A-2-4, A-3	0	0	90-100	85-100	51-90	4-25	9-16	NP-2
8A:												
Chewacla--------	0-5	Loam, sandy loam, fine sandy loam, silt loam	ML, CL-ML, CL	A-4, A-7, A-6	0	0	95-100	92-100	55-100	27-90	22-45	6-18
	5-13	Clay loam, silty clay loam, silt loam	CL	A-6, A-4	0	0	96-100	95-100	86-100	66-95	23-38	6-14
	13-40	Sandy clay loam, loam, clay loam	CL, SC-SM	A-6, A-4	0	0	96-100	95-100	60-90	29-65	23-38	6-14
	40-60	Sand, clay	SW-SM, SP-SM, SC, SM, CH, CL	A-2-6, A-6	0	0	80-100	75-100	40-100	3-95	7-61	NP-27
9C:												
Helena----------	0-8	Sandy loam	SC, SC-SM, SM	A-4, A-2	0	0-3	85-100	80-100	50-70	25-40	17-35	2-13
	8-15	Sandy clay loam, sandy loam, loam	SC-SM, SC	A-4, A-6	0	0	80-100	75-100	50-100	25-80	16-38	2-14
	15-50	Sandy clay, clay, clay loam	CH	A-7	0	0	80-100	75-100	65-100	35-95	34-61	12-27
	50-60	Sandy clay loam, clay loam, loam			0	0	80-100	75-100	65-100	35-95	16-42	2-16
Appling---------	0-10	Sandy loam	SM, SC-SM	A-2-4	0	0-5	86-100	80-100	55-91	15-35	9-20	NP-2
	10-42	Sandy clay, clay loam, clay	ML, MH	A-4, A-7	0	0-5	95-100	90-100	70-95	51-80	31-51	5-12
	42-60	Sandy clay, clay loam, sandy clay loam	ML, CL-ML, SC-SM	A-6, A-4	0	0-5	95-100	85-100	70-90	40-75	20-39	2-11
	60-72	Sandy clay loam, sandy loam	SC, CL, SM, SW-SM	A-7-6, A-2-4, A-4	0	0	80-100	75-100	40-100	3-80	0-49	NP-28

Table 16.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
10E:												
Kempsville------	0-19	Fine sandy loam, loamy sand, sandy loam	SC-SM, SM, CL-ML, ML	A-2, A-4	0	0	90-100	80-100	40-85	12-55	17-31	2-10
	19-37	Sandy clay loam, fine sandy loam, clay loam	CL, SC-SM	A-2, A-4	0	0-2	90-100	80-100	55-100	30-80	23-38	7-15
	37-65	Sandy clay, sandy clay loam	SC, CL	A-4, A-2, A-7-6, A-6	0	0-2	90-100	80-100	65-95	30-60	25-47	8-20
	65-150	Sandy clay loam, stratified loamy sand to sandy clay loam	SC, SM, SC-SM	A-1, A-2-4, A-6, A-4	0	0-5	85-100	80-100	40-90	10-55	12-34	NP-12
Emporia---------	0-12	Sandy loam, fine sandy loam, loam, loamy sand, loamy fine sand, gravelly sandy loam	ML, SM, SC-SM	A-2-4, A-4	0	0	80-100	70-100	35-95	10-75	19-33	3-12
	12-42	Loam, fine sandy loam, sandy clay loam, clay loam, sandy loam, gravelly loam	SC, CL	A-6	0	0	80-100	70-100	40-100	20-80	27-44	12-25
	42-62	Sandy clay loam, sandy loam, fine sandy loam, loam, clay loam, sandy clay, clay, gravelly sandy loam	CL, SM, SC, ML	A-6, A-4, A-1-b, A-2-4	0	0	80-100	70-100	40-100	20-95	22-58	6-36
Remlik----------	0-22	Loamy sand, loamy fine sand, sand, fine sand, gravelly sand	SP-SM, SP, SM, SC-SM	A-3, A-1-b, A-2-4	0	0	60-100	50-100	25-85	2-45	0-24	NP-6
	22-38	Sandy clay loam, sandy loam, fine sandy loam, gravelly sandy loam	SC, SC-SM	A-6, A-4, A-2-4	0	0	60-100	50-100	30-90	15-55	18-40	4-21
	38-70	Sandy loam, fine sandy loam, loamy sand, loamy fine sand, gravelly sandy loam	SM, SC, SC-SM, SP-SM	A-4, A-2-4, A-6, A-1-b	0	0	60-100	50-100	25-85	8-55	15-31	1-13
11A:												
Kempsville------	0-19	Fine sandy loam, loamy sand, sandy loam	SM, CL-ML, ML, SC-SM	A-2, A-4	0	0	90-100	80-100	40-85	12-55	17-31	2-10
	19-37	Sandy clay loam, fine sandy loam, clay loam	SC-SM, CL	A-2, A-4	0	0-2	90-100	80-100	55-100	30-80	23-38	7-15
	37-65	Sandy clay, sandy clay loam	SC, CL	A-2, A-6, A-4, A-7-6	0	0-2	90-100	80-100	65-95	30-60	25-47	8-20
	65-150	Sandy clay loam, stratified loamy sand to sandy clay loam	SC-SM, SM, SC	A-6, A-4, A-2-4, A-1	0	0-5	85-100	80-100	40-90	10-55	12-34	NP-12

Table 16.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
11A:												
Emporia---------	0-12	Sandy loam, fine sandy loam, loam, loamy sand, loamy fine sand, gravelly sandy loam	ML, SM, SC-SM	A-2-4, A-4	0	0	80-100	70-100	35-95	10-75	19-33	3-12
	12-42	Loam, fine sandy loam, sandy clay loam, clay loam, sandy loam, gravelly loam	CL, SC	A-6	0	0	80-100	70-100	40-100	20-80	27-44	12-25
	42-62	Sandy clay loam, sandy loam, fine sandy loam, loam, clay loam, sandy clay, clay, gravelly sandy loam	SC, SM, CL, ML	A-1-b, A-2-4, A-4, A-6	0	0	80-100	70-100	40-100	20-95	22-58	6-36
11B:												
Kempsville------	0-19	Fine sandy loam, loamy sand, sandy loam	SM, CL-ML, ML, SC-SM	A-4, A-2	0	0	90-100	80-100	40-85	12-55	17-31	2-10
	19-37	Sandy clay loam, fine sandy loam, clay loam	CL, SC-SM	A-2, A-4	0	0-2	90-100	80-100	55-100	30-80	23-38	7-15
	37-65	Sandy clay, sandy clay loam	CL, SC	A-6, A-2, A-4, A-7-6	0	0-2	90-100	80-100	65-95	30-60	25-47	8-20
	65-150	Sandy clay loam, stratified loamy sand to sandy clay loam	SC, SC-SM, SM	A-1, A-2-4, A-6, A-4	0	0-5	85-100	80-100	40-90	10-55	12-34	NP-12
Emporia---------	0-12	Sandy loam, fine sandy loam, loam, loamy sand, loamy fine sand, gravelly sandy loam	ML, SM, SC-SM	A-4, A-2-4	0	0	80-100	70-100	35-95	10-75	19-33	3-12
	12-42	Loam, fine sandy loam, sandy clay loam, clay loam, sandy loam, gravelly loam	CL, SC	A-6	0	0	80-100	70-100	40-100	20-80	27-44	12-25
	42-62	Sandy clay loam, sandy loam, fine sandy loam, loam, clay loam, sandy clay, clay, gravelly sandy loam	CL, ML, SC, SM	A-6, A-2-4, A-1-b, A-4	0	0	80-100	70-100	40-100	20-95	22-58	6-36

Table 16.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
11C:												
Kempsville------	0-19	Loamy sand, fine sandy loam, sandy loam	ML, CL-ML, SM, SC-SM	A-4, A-2	0	0	90-100	80-100	40-85	12-55	17-31	2-10
	19-37	Sandy clay loam, fine sandy loam, clay loam	SC-SM, CL	A-2, A-4	0	0-2	90-100	80-100	55-100	30-80	23-38	7-15
	37-65	Sandy clay, sandy clay loam	SC, CL	A-7-6, A-2, A-6, A-4	0	0-2	90-100	80-100	65-95	30-60	25-47	8-20
	65-150	Sandy clay loam, stratified loamy sand to sandy clay loam	SC-SM, SC, SM	A-2-4, A-6, A-4, A-1	0	0-5	85-100	80-100	40-90	10-55	12-34	NP-12
Emporia---------	0-12	Sandy loam, fine sandy loam, loam, loamy sand, loamy fine sand, gravelly sandy loam	SC-SM, SM, ML	A-2-4, A-4	0	0	80-100	70-100	35-95	10-75	19-33	3-12
	12-42	Loam, fine sandy loam, sandy clay loam, clay loam, sandy loam, gravelly loam	CL, SC	A-6	0	0	80-100	70-100	40-100	20-80	27-44	12-25
	42-62	Sandy clay loam, sandy loam, fine sandy loam, loam, clay loam, sandy clay, clay, gravelly sandy loam	CL, ML, SM, SC	A-4, A-2-4, A-1-b, A-6	0	0	80-100	70-100	40-100	20-95	22-58	6-36
12A:												
Myatt-----------	0-7	Loam, fine sandy loam, sandy loam, loamy fine sand, loamy sand	CL-ML, CL	A-6, A-4	0	0	97-100	95-100	50-95	15-75	20-43	4-17
	7-15	Fine sandy loam, loam, sandy loam, loamy fine sand, loamy sand	CL-ML, CL, SC	A-6, A-4	0	0	97-100	95-100	50-95	15-75	19-39	4-17
	15-40	Sandy clay loam, clay loam, loam, fine sandy loam	SC, CL	A-6	0	0	97-100	95-100	65-100	40-80	27-45	12-25
	40-65	Coarse sand, gravelly sand, sandy loam, fine sandy loam, sandy clay loam, clay loam	CL-ML, CL, SP-SM, SC, SW-SM	A-6, A-4, A-2-4, A-1-b	0	0	75-95	60-92	30-90	3-75	0-40	NP-21

Table 16.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
12A:												
Slagle----------	0-13	Fine sandy loam, sandy loam, loam	SC, ML, SM, SC-SM	A-4, A-2-4	0	0-2	95-100	90-100	55-95	30-75	15-25	NP-10
	13-40	Sandy clay loam, clay loam, fine sandy loam, sandy loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0-2	95-100	90-100	55-100	30-80	20-40	5-20
	40-51	Sandy clay loam, clay loam, sandy loam, clay	CL, SC	A-4, A-6, A-7-6	0	0-2	95-100	90-100	55-100	30-95	25-50	8-30
	51-65	Fine sandy loam, stratified loamy sand to clay	ML, SC, SM, CL	A-2-4, A-6, A-4, A-1	0	0-2	95-100	90-100	45-100	15-95	15-40	NP-25
13E:												
Nevarc----------	0-6	Sandy loam, fine sandy loam, loam, silt loam	SC-SM, SC	A-4, A-2-4	0	0	90-100	80-100	50-100	25-90	20-33	4-12
	6-40	Clay, clay loam, sandy clay loam, silty clay loam, sandy clay, silty clay	CH, CL	A-7-6	0	0	90-100	80-100	65-100	30-95	41-63	22-40
	40-60	Clay, stratified gravelly sand to clay	CH, CL, SC-SM, SC, SM	A-2-4, A-6, A-7-6, A-1-b, A-4	0	0	70-100	50-100	25-100	2-95	0-57	NP-36
14.												
Pits, gravel												
15A:												
Rappahannock----	0-12	Muck, mucky peat	PT	A-8	0	0	---	---	---	---	---	---
	12-39	Mucky peat, muck	PT	A-8	0	0	---	---	---	---	---	---
	39-62	Sandy loam, loamy sand	SM	A-2-4, A-6, A-4	0	0	100	100	50-75	15-40	20-40	2-12
16B:												
Remlik----------	0-22	Loamy sand, loamy fine sand, sand, fine sand, gravelly sand	SP, SP-SM, SM, SC-SM	A-2-4, A-1-b, A-3	0	0	60-100	50-100	25-85	2-45	0-24	NP-6
	22-38	Sandy clay loam, sandy loam, fine sandy loam, gravelly sandy loam	SC-SM, SC	A-2-4, A-4, A-6	0	0	60-100	50-100	30-90	15-55	18-40	4-21
	38-70	Sandy loam, fine sandy loam, loamy sand, loamy fine sand, gravelly sandy loam	SC, SP-SM, SM, SC-SM	A-2-4, A-6, A-4, A-1-b	0	0	60-100	50-100	25-85	8-55	15-31	1-13

Table 16.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct	Pct					Pct	
16C:												
Remlik----------	0-22	Loamy sand, loamy fine sand, sand, fine sand, gravelly sand	SP-SM, SP, SM, SC-SM	A-1-b, A-2-4, A-3	0	0	60-100	50-100	25-85	2-45	0-24	NP-6
	22-38	Sandy clay loam, sandy loam, fine sandy loam, gravelly sandy loam	SC-SM, SC	A-2-4, A-6, A-4	0	0	60-100	50-100	30-90	15-55	18-40	4-21
	38-70	Sandy loam, fine sandy loam, loamy sand, loamy fine sand, gravelly sandy loam	SM, SC-SM, SP-SM, SC	A-1-b, A-6, A-4, A-2-4	0	0	60-100	50-100	25-85	8-55	15-31	1-13
16E:												
Remlik----------	0-22	Loamy sand, loamy fine sand, sand, fine sand, gravelly sand	SP-SM, SP, SM, SC-SM	A-2-4, A-3, A-1-b	0	0	60-100	50-100	25-85	2-45	0-24	NP-6
	22-38	Sandy clay loam, sandy loam, fine sandy loam, gravelly sandy loam	SC, SC-SM	A-6, A-4, A-2-4	0	0	60-100	50-100	30-90	15-55	18-40	4-21
	38-70	Sandy loam, fine sandy loam, loamy sand, loamy fine sand, gravelly sandy loam	SC-SM, SP-SM, SC, SM	A-2-4, A-4, A-6, A-1-b	0	0	60-100	50-100	25-85	8-55	15-31	1-13
17D:												
Rion------------	0-7	Sandy loam	SM	A-2-4, A-2, A-4	0-5	0-5	90-100	85-100	60-80	20-45	15-35	NP-7
	7-38	Sandy loam, sandy clay loam, clay loam	SC-SM, SC, CL-ML, CL	A-6, A-2, A-4	0-5	0-5	90-100	85-100	60-85	30-60	20-35	5-15
	38-60	Sandy loam, sandy clay loam, loamy sand	SC, SM, SC-SM	A-6, A-4, A-2, A-2-4	0-5	0-5	90-100	80-100	60-85	15-50	15-36	NP-12
18A:												
Riverview-------	0-15	Silt loam, loam	CL-ML, CL	A-6, A-4	0	0-1	95-100	95-100	80-95	60-75	22-43	6-17
	15-59	Sandy loam, loam	SM, SC-SM	A-4, A-2	0	0	90-100	85-100	50-95	25-75	9-20	NP-2
	59-79	Loamy sand, sandy loam, fine sandy loam, loam	SC, SC-SM, SM, ML, CL-ML, CL	A-6, A-1, A-2-4, A-4	0	0	65-100	50-100	25-95	10-75	16-30	2-12

Table 16.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
19A:												
Roanoke---------	0-5	Loam, silt loam, fine sandy loam	CL-ML, SC, CL, SC-SM	A-6, A-4	0	0	100	100	70-100	40-90	21-41	6-19
	5-36	Clay, clay loam, silty clay, silty clay loam	CL, CH	A-7-6	0	0	100	100	90-100	70-95	43-68	25-44
	36-42	Sandy clay loam, clay loam, silty clay loam	SC, CL	A-7-6, A-6	0	0	100	100	80-100	35-95	31-50	13-29
	42-62	Stratified loamy sand to sandy loam to clay loam, sandy loam, stratified sand to clay	SC-SM, SC, CL-ML, CH	A-7-6, A-6, A-2-4, A-1-b, A-4	0	0	100	100	50-100	5-95	0-58	NP-36
20B:												
Rumford---------	0-14	Loamy sand, loamy fine sand, sandy loam, fine sandy loam	SM, SC-SM	A-1-b, A-2-4	0	0	100	100	45-85	15-55	9-20	NP-4
	14-38	Sandy loam, fine sandy loam, sandy clay loam	SC-SM, SM	A-2-4, A-4	0	0	100	100	50-90	25-55	14-25	1-7
	38-55	Loamy sand, sandy loam, fine sandy loam	SM, SC-SM	A-2-4, A-4	0	0	100	100	50-90	25-55	14-25	1-7
	55-99	Sand, stratified sand to fine sandy loam	SP-SM, SM	A-3, A-2-4, A-1-b, A-4	0	0	100	100	20-70	2-40	9-23	NP-6
20C:												
Rumford---------	0-14	Loamy sand, loamy fine sand, sandy loam, fine sandy loam	SC-SM, SM	A-2-4, A-1-b	0	0	100	100	45-85	15-55	9-20	NP-4
	14-38	Sandy loam, fine sandy loam, sandy clay loam	SC-SM, SM	A-2-4, A-4	0	0	100	100	50-90	25-55	14-25	1-7
	38-55	Loamy sand, sandy loam, fine sandy loam	SM, SC-SM	A-2-4, A-4	0	0	100	100	50-90	25-55	14-25	1-7
	55-99	Sand, stratified sand to fine sandy loam	SM, SP-SM	A-4, A-1-b, A-3, A-2-4	0	0	100	100	20-70	2-40	9-23	NP-6
20D:												
Rumford---------	0-14	Loamy sand, loamy fine sand, sandy loam, fine sandy loam	SC-SM, SM	A-2-4, A-1-b	0	0	100	100	45-85	15-55	9-20	NP-4
	14-38	Sandy loam, fine sandy loam, sandy clay loam	SC-SM, SM	A-4, A-2-4	0	0	100	100	50-90	25-55	14-25	1-7
	38-55	Loamy sand, sandy loam, fine sandy loam	SC-SM, SM	A-4, A-2-4	0	0	100	100	50-90	25-55	14-25	1-7
	55-99	Sand, stratified sand to fine sandy loam	SP-SM, SM	A-2-4, A-3, A-4, A-1-b	0	0	100	100	20-70	2-40	9-23	NP-6

Table 16.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
21C:												
Slagle----------	0-13	Fine sandy loam, sandy loam, loam	SM, SC-SM, ML, SC	A-4, A-2-4	0	0-2	95-100	90-100	55-95	30-75	15-25	NP-10
	13-40	Sandy clay loam, clay loam, fine sandy loam, sandy loam	SC, SC-SM, CL-ML, CL	A-6, A-4	0	0-2	95-100	90-100	55-100	30-80	20-40	5-20
	40-51	Sandy clay loam, clay loam, sandy loam, clay	SC, CL	A-7-6, A-6, A-4	0	0-2	95-100	90-100	55-100	30-95	25-50	8-30
	51-65	Fine sandy loam, stratified loamy sand to clay	CL, SC, SM, ML	A-6, A-4, A-2-4, A-1	0	0-2	95-100	90-100	45-100	15-95	15-40	NP-25
Kempsville------	0-19	Loamy sand, fine sandy loam, sandy loam	CL-ML, ML, SC-SM, SM	A-4, A-2	0	0	90-100	80-100	40-85	12-55	17-31	2-10
	19-37	Sandy clay loam, fine sandy loam, clay loam	SC-SM, CL	A-4, A-2	0	0-2	90-100	80-100	55-100	30-80	23-38	7-15
	37-65	Sandy clay, sandy clay loam	SC, CL	A-7-6, A-4, A-6, A-2	0	0-2	90-100	80-100	65-95	30-60	25-47	8-20
	65-150	Sandy clay loam, stratified loamy sand to sandy clay loam	SC, SC-SM, SM	A-1, A-2-4, A-4, A-6	0	0-5	85-100	80-100	40-90	10-55	12-34	NP-12
22A:												
Slagle----------	0-13	Fine sandy loam, sandy loam, loam	SC-SM, ML, SC, SM	A-2-4, A-4	0	0-2	95-100	90-100	55-95	30-75	15-25	NP-10
	13-40	Sandy clay loam, clay loam, fine sandy loam, sandy loam	SC-SM, SC, CL, CL-ML	A-4, A-6	0	0-2	95-100	90-100	55-100	30-80	20-40	5-20
	40-51	Sandy clay loam, clay loam, sandy loam, clay	CL, SC	A-7-6, A-6, A-4	0	0-2	95-100	90-100	55-100	30-95	25-50	8-30
	51-65	Fine sandy loam, stratified loamy sand to clay	CL, SM, SC, ML	A-1, A-2-4, A-4, A-6	0	0-2	95-100	90-100	45-100	15-95	15-40	NP-25
22B:												
Slagle----------	0-13	Fine sandy loam, sandy loam, loam	SM, SC-SM, ML, SC	A-2-4, A-4	0	0-2	95-100	90-100	55-95	30-75	15-25	NP-10
	13-40	Sandy clay loam, clay loam, fine sandy loam, sandy loam	SC-SM, CL-ML, CL, SC	A-4, A-6	0	0-2	95-100	90-100	55-100	30-80	20-40	5-20
	40-51	Sandy clay loam, clay loam, sandy loam, clay	SC, CL	A-7-6, A-4, A-6	0	0-2	95-100	90-100	55-100	30-95	25-50	8-30
	51-65	Fine sandy loam, stratified loamy sand to clay	ML, CL, SC, SM	A-6, A-1, A-2-4, A-4	0	0-2	95-100	90-100	45-100	15-95	15-40	NP-25

Table 16.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments >10 inches	Fragments 3-10 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
23A:												
State-----------	0-17	Fine sandy loam, sandy loam, loam, silt loam, loamy sand, loamy fine sand	ML, CL-ML, SC-SM, SM	A-2-4, A-4	0	0	97-100	95-100	50-100	15-90	17-35	2-13
	17-36	Sandy clay loam, clay loam, loam, silt loam, sandy loam	SC, CL	A-6	0	0	97-100	95-100	55-100	30-90	27-43	12-24
	36-62	Loamy fine sand, loamy sand, sand, sandy loam	SC-SM, SM, SP-SM	A-1-b, A-2-4, A-3, A-4	0	0	90-100	80-100	40-85	4-45	0-27	NP-10
23B:												
State-----------	0-17	Fine sandy loam, sandy loam, loam, silt loam, loamy sand, loamy fine sand	CL-ML, SM, SC-SM, ML	A-2-4, A-4	0	0	97-100	95-100	50-100	15-90	17-35	2-13
	17-36	Sandy clay loam, clay loam, loam, silt loam, sandy loam	CL, SC	A-6	0	0	97-100	95-100	55-100	30-90	27-43	12-24
	36-62	Loamy fine sand, loamy sand, sand, sandy loam	SC-SM, SM, SP-SM	A-4, A-3, A-2-4, A-1-b	0	0	90-100	80-100	40-85	4-45	0-27	NP-10
23C:												
State-----------	0-17	Fine sandy loam, sandy loam, loam, silt loam, loamy sand, loamy fine sand	SM, SC-SM, ML, CL-ML	A-4, A-2-4	0	0	97-100	95-100	50-100	15-90	17-35	2-13
	17-36	Sandy clay loam, clay loam, loam, silt loam, sandy loam	SC, CL	A-6	0	0	97-100	95-100	55-100	30-90	27-43	12-24
	36-62	Loamy fine sand, loamy sand, sand, sandy loam	SP-SM, SM, SC-SM	A-2-4, A-1-b, A-4, A-3	0	0	90-100	80-100	40-85	4-45	0-27	NP-10
24A:												
Suffolk---------	0-8	Sandy loam, fine sandy loam, loamy sand, loamy fine sand	SM, SC-SM, ML, CL-ML	A-4, A-2-4	0	0	97-100	92-100	45-85	15-55	18-33	3-12
	8-43	Sandy clay loam, sandy loam, fine sandy loam, clay loam, loam	CL, SC	A-6	0	0	97-100	92-100	55-100	25-80	27-43	12-24
	43-65	Loamy fine sand, sand, loamy sand, fine sand	SC-SM, SP, SM	A-4, A-1-b, A-2-4	0	0	90-100	85-100	40-85	4-45	15-22	1-6

Table 16.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
24B:												
Suffolk---------	0-8	Sandy loam, fine sandy loam, loamy sand, loamy fine sand	SM, SC-SM, ML, CL-ML	A-4, A-2-4	0	0	97-100	92-100	45-85	15-55	18-33	3-12
	8-43	Sandy clay loam, sandy loam, fine sandy loam, clay loam, loam	CL, SC	A-6	0	0	97-100	92-100	55-100	25-80	27-43	12-24
	43-65	Loamy fine sand, sand, loamy sand, fine sand	SC-SM, SP, SM	A-4, A-2-4, A-1-b	0	0	90-100	85-100	40-85	4-45	15-22	1-6
25B:												
Tarboro---------	0-7	Sand, loamy sand, loamy fine sand	SW-SM, SP-SC, SM	A-2-4, A-3, A-1-b	0	0	100	100	50-85	5-45	0-26	NP-7
	7-62	Sand, loamy sand, loamy fine sand	SP-SM, SM, SW-SM	A-3, A-1-b, A-2-4	0	0	100	100	50-85	5-45	0-21	NP-4
Bojac-----------	0-12	Fine sandy loam, sandy loam, loamy sand	SM, SC-SM, ML, CL-ML	A-2-4, A-4	0	0	95-100	92-100	45-85	15-55	0-25	NP-4
	12-46	Fine sandy loam, loam, sandy loam	SC, CL	A-4, A-2-4	0	0	95-100	92-100	55-95	25-75	21-28	6-10
	46-65	Fine sand, stratified coarse sand to loamy fine sand	SW-SM, SC-SM, SP, SM	A-1, A-2-4, A-3	0	0	90-100	80-100	40-85	4-45	0-21	NP-4
26A:												
Tomotley--------	0-5	Fine sandy loam, sandy loam, loam, silt loam, loamy sand	CL, SM, SC-SM	A-2-4, A-4	0	0	95-100	92-100	45-100	15-90	18-43	2-13
	5-45	Sandy clay loam, sandy loam, fine sandy loam, loam, silty clay loam	SC-SM, SC, CL	A-6	0	0	95-100	92-100	55-100	25-95	28-45	12-24
	45-62	Sandy loam, fine sandy loam, sandy clay loam, clay loam, stratified sand to clay	SC-SM, CL, CL-ML, SC	A-4, A-6, A-7-6, A-2-4	0	0	95-100	92-100	45-100	4-95	0-53	NP-32
Roanoke---------	0-5	Loam, silt loam, fine sandy loam	SC-SM, SC, CL-ML, CL	A-6, A-4	0	0	100	100	70-100	40-90	21-41	6-19
	5-36	Clay, clay loam, silty clay, silty clay loam	CH, CL	A-7-6	0	0	100	100	90-100	70-95	43-68	25-44
	36-42	Sandy clay loam, clay loam, silty clay loam	SC, CL	A-6, A-7-6	0	0	100	100	80-100	35-95	31-50	13-29
	42-62	Stratified loamy sand to sandy loam to clay loam, sandy loam, stratified sand to clay	SC, CL-ML, CH, SC-SM	A-7-6, A-6, A-4, A-2-4, A-1-b	0	0	100	100	50-100	5-95	0-58	NP-36

Table 16.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
27C. Udorthents												
28A: Wehadkee--------	0-10	Loam, silt loam	SC-SM, ML	A-4	0	0	100	100	85-100	60-90	20-41	2-13
	10-44	Loam, silt loam, clay loam, silty clay loam, sandy clay loam	CL, SC	A-4, A-6, A-7	0	0	100	100	80-100	35-95	24-45	9-25
	44-70	Clay loam, loam, sandy loam, loamy sand, sand	CL, CL-ML, ML, SC	A-6, A-7, A-1-b, A-2-4, A-4	0	0	100	100	50-100	5-80	0-45	NP-25
29A: Wickham---------	0-15	Loamy fine sand, loamy sand, sandy loam, fine sandy loam, loam	SM, SC-SM	A-2-4, A-1-b, A-4	0	0	95-100	92-100	45-95	15-75	16-24	1-6
	15-19	Fine sandy loam, sandy loam, loam	CL, SC	A-6, A-4, A-2-4	0	0	95-100	92-100	55-95	30-75	20-36	6-17
	19-37	Sandy clay loam, clay loam, loam, sandy loam	SC, CL	A-7-6, A-6	0	0	95-100	92-100	55-100	30-80	27-44	12-25
	37-70	Loamy fine sand, fine sand, sand, sandy clay loam	CL, SM, SC-SM	A-2-4, A-4, A-1-b, A-3, A-6	0	0	90-100	80-100	40-90	4-55	0-40	NP-21
29B: Wickham---------	0-15	Loamy fine sand, loamy sand, sandy loam, fine sandy loam, loam	SM, SC-SM	A-4, A-1-b, A-2-4	0	0	95-100	92-100	45-95	15-75	16-24	1-6
	15-19	Fine sandy loam, sandy loam, loam	CL, SC	A-6, A-4, A-2-4	0	0	95-100	92-100	55-95	30-75	20-36	6-17
	19-37	Sandy clay loam, clay loam, loam, sandy loam	SC, CL	A-6, A-7-6	0	0	95-100	92-100	55-100	30-80	27-44	12-25
	37-70	Loamy fine sand, fine sand, sand, sandy clay loam	CL, SM, SC-SM	A-6, A-2-4, A-4, A-3, A-1-b	0	0	90-100	80-100	40-90	4-55	0-40	NP-21

Table 16.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
30E:												
Wateree---------	0-9	Sandy loam, gravelly sandy loam, fine sandy loam	SC-SM, SM	A-2-4	0	0-5	75-100	65-100	40-85	20-55	17-31	2-10
	9-22	Sandy loam, gravelly sandy loam, fine sandy loam	SC-SM, SM, SC	A-2-4, A-4	0	0-5	75-100	65-100	40-85	20-55	18-30	3-12
	22-80	Bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	0-14	---
W.												
Water												

Table 17.—Physical Soil Properties

(Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Wind erodibility index" apply only to the surface layer. Absence of an entry indicates that data were not estimated)

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
1A:														
Altavista------------	0-16	25-92	1-45	5-10	1.40-1.60	14.00-42.00	0.07-0.12	0.0-2.9	0.5-3.0	.10	.10	5	3	86
	16-40	20-80	5-45	18-35	1.30-1.50	4.00-14.00	0.12-0.20	0.0-2.9	0.0-0.5	.15	.15			
	40-65	55-99	0-30	2-20	1.40-1.70	4.00-141.00	0.05-0.15	0.0-2.9	0.0-0.2	.10	.10			
1B:														
Altavista------------	0-16	25-92	1-45	5-10	1.40-1.60	14.00-42.00	0.07-0.12	0.0-2.9	0.5-3.0	.10	.10	5	3	86
	16-40	20-80	5-45	18-35	1.30-1.50	4.00-14.00	0.12-0.20	0.0-2.9	0.0-0.5	.15	.15			
	40-65	55-99	0-30	2-20	1.40-1.70	4.00-141.00	0.05-0.15	0.0-2.9	0.0-0.2	.10	.10			
2B:														
Appling--------------	0-10	44-85	5-49	5-20	1.40-1.65	4.00-42.00	0.10-0.15	0.0-2.9	0.5-2.0	.24	.28	4	3	86
	10-42	5-65	5-45	35-60	1.25-1.45	4.00-14.00	0.15-0.17	0.0-2.9	0.0-0.5	.28	.28			
	42-60	20-80	5-45	20-50	1.25-1.45	4.00-14.00	0.12-0.16	0.0-2.9	0.0-0.5	.28	.28			
	60-72	44-90	5-49	0-40	1.30-1.60	4.00-141.00	0.05-0.16	0.0-2.9	0.0-0.5	.10	.24			
2C:														
Appling--------------	0-10	44-85	5-49	5-20	1.40-1.65	4.00-42.00	0.10-0.15	0.0-2.9	0.5-2.0	.24	.28	4	3	86
	10-42	5-65	5-45	35-60	1.25-1.45	4.00-14.00	0.15-0.17	0.0-2.9	0.0-0.5	.28	.28			
	42-60	20-80	5-45	20-50	1.25-1.45	4.00-14.00	0.12-0.16	0.0-2.9	0.0-0.5	.28	.28			
	60-72	44-90	5-49	0-40	1.30-1.60	4.00-141.00	0.05-0.16	0.0-2.9	0.0-0.5	.10	.24			
3A:														
Bama-----------------	0-13	30-80	5-45	7-22	1.30-1.60	4.00-42.00	0.08-0.15	0.0-2.9	0.5-1.0	.24	.24	5	3	86
	13-26	30-75	5-45	18-32	1.40-1.55	4.00-14.00	0.12-0.18	0.0-2.9	0.0-0.5	.32	.32			
	26-70	30-75	5-45	15-35	1.40-1.60	4.00-14.00	0.12-0.18	0.0-2.9	0.0-0.2	.15	.15			
3B:														
Bama-----------------	0-13	30-80	5-45	7-22	1.30-1.60	4.00-42.00	0.08-0.15	0.0-2.9	0.5-1.0	.24	.24	5	3	86
	13-26	30-75	5-45	18-32	1.40-1.55	4.00-14.00	0.12-0.18	0.0-2.9	0.0-0.5	.32	.32			
	26-70	30-75	5-45	15-35	1.40-1.60	4.00-14.00	0.12-0.18	0.0-2.9	0.0-0.2	.15	.15			
4A:														
Bibb-----------------	0-15	20-98	1-75	2-15	1.50-1.75	42.00-141.00	0.06-0.10	0.0-2.9	0.5-4.0	.10	.10	5	3	86
	15-42	20-98	1-75	8-18	1.45-1.70	4.00-14.00	0.10-0.20	0.0-2.9	0.5-2.0	.20	.20			
	42-65	20-98	1-75	2-18	1.45-1.75	4.00-141.00	0.04-0.20	0.0-2.9	0.5-3.0	.10	.10			
Chastain-------------	0-13	24-52	28-50	15-35	1.20-1.40	1.40-4.00	0.12-0.18	0.0-2.9	1.0-6.0	.32	.32	4	5	56
	13-36	5-45	15-65	35-60	1.30-1.50	0.42-1.40	0.12-0.16	0.0-2.9	1.0-3.0	.37	.37			
	36-80	70-95	0-29	2-10	1.50-1.70	42.00-141.00	0.03-0.06	0.0-2.9	1.0-3.0	.10	.10			

Table 17.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
5B:														
Bojac	0-12	50-88	0-45	3-8	1.20-1.50	14.00-42.00	0.08-0.16	0.0-2.9	0.5-2.0	.28	.28	4	3	86
	12-46	35-80	5-45	11-16	1.35-1.55	14.00-42.00	0.08-0.16	0.0-2.9	0.0-0.5	.32	.32			
	46-65	75-99	0-25	1-8	1.30-1.50	42.00-141.00	0.02-0.07	0.0-2.9	0.0-0.2	.20	.20			
6B:														
Cecil	0-9	44-85	5-49	5-20	1.30-1.50	14.00-42.00	0.12-0.14	0.0-2.9	0.5-1.0	.28	.28	4	3	86
	9-14	20-80	5-45	20-35	1.30-1.50	4.00-14.00	0.13-0.15	0.0-2.9	0.0-0.5	.28	.28			
	14-63	5-45	5-45	35-70	1.30-1.50	4.00-14.00	0.13-0.15	0.0-2.9	0.0-0.5	.28	.28			
	63-83	20-95	5-50	2-35	1.30-1.60	4.00-141.00	0.05-0.16	0.0-2.9	0.0-0.5	.10	.24			
7A:														
Chastain	0-13	24-52	28-50	15-35	1.20-1.40	1.40-4.00	0.12-0.18	0.0-2.9	1.0-6.0	.32	.32	4	5	56
	13-36	5-45	15-65	35-60	1.30-1.50	0.42-1.40	0.12-0.16	0.0-2.9	1.0-3.0	.37	.37			
	36-80	70-95	0-29	2-10	1.50-1.70	42.00-141.00	0.03-0.06	0.0-2.9	1.0-3.0	.10	.10			
8A:														
Chewacla	0-5	5-85	5-87	10-27	1.30-1.60	4.00-14.00	0.15-0.24	0.0-2.9	1.0-4.0	.37	.37	5	5	56
	5-13	15-45	15-80	18-35	1.30-1.50	4.00-14.00	0.15-0.24	0.0-2.9	0.5-2.0	.32	.32			
	13-40	24-82	5-50	18-35	1.30-1.60	4.00-14.00	0.12-0.20	0.0-2.9	0.5-2.0	.28	.28			
	40-60	5-95	5-39	0-60	1.25-1.60	1.40-141.00	0.05-0.20	0.0-2.9	0.0-0.5	.20	.20			
9C:														
Helena	0-8	45-85	5-50	5-20	1.58-1.62	14.00-42.00	0.10-0.12	0.0-2.5	0.5-2.0	.24	.24	4	5	56
	8-15	45-85	5-50	10-35	1.20-1.50	4.00-14.00	0.08-0.15	0.0-2.9	0.0-0.2	.28	.28			
	15-50	5-65	5-52	30-60	1.44-1.55	0.42-1.40	0.13-0.15	6.0-8.9	0.0-0.5	.28	.28			
	50-60	24-85	5-52	10-39	1.20-1.50	4.00-14.00	0.08-0.15	0.0-2.9	0.0-0.5	.28	.28			
Appling	0-10	44-85	5-49	5-20	1.40-1.65	4.00-42.00	0.10-0.15	0.0-2.9	0.5-2.0	.24	.28	4	3	86
	10-42	5-65	5-45	35-60	1.25-1.45	4.00-14.00	0.15-0.17	0.0-2.9	0.0-0.5	.28	.28			
	42-60	20-80	5-45	20-50	1.25-1.45	4.00-14.00	0.12-0.16	0.0-2.9	0.0-0.5	.28	.28			
	60-72	44-90	5-49	0-40	1.30-1.60	4.00-141.00	0.05-0.16	0.0-2.9	0.0-0.5	.10	.24			
10E:														
Kempsville	0-19	45-90	5-50	5-15	1.30-1.40	14.00-42.00	0.08-0.14	0.0-2.9	0.5-2.0	.24	.24	5	3	86
	19-37	20-82	5-50	18-34	1.30-1.45	4.00-14.00	0.12-0.18	0.0-2.9	0.5-1.0	.24	.24			
	37-65	45-80	4-27	20-45	1.35-1.65	1.40-14.00	0.12-0.18	0.0-2.9	0.0-0.5	.24	.24			
	65-150	45-91	5-29	5-30	1.30-1.60	4.00-142.00	0.08-0.15	0.0-2.9	0.0-0.5	.24	.24			
Emporia	0-12	25-90	0-45	7-18	1.30-1.40	14.00-42.00	0.10-0.17	0.0-2.9	0.5-2.0	.24	.24	5	3	86
	12-42	25-80	5-45	18-35	1.35-1.45	4.00-14.00	0.10-0.18	0.0-2.9	0.0-0.5	.32	.32			
	42-62	10-80	5-45	10-50	1.45-1.60	0.10-14.00	0.08-0.18	3.0-5.9	0.0-0.2	.15	.15			
Remlik	0-22	72-99	0-20	0-10	1.20-1.50	42.00-141.00	0.04-0.08	0.0-2.9	0.5-1.0	.10	.10	5	2	134
	22-38	45-82	5-30	8-30	1.20-1.35	4.00-14.00	0.10-0.17	0.0-2.9	0.0-0.5	.15	.15			
	38-70	45-82	5-30	4-20	1.25-1.40	4.00-42.00	0.04-0.16	0.0-2.9	0.0-0.2	.24	.24			

Table 17.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors			Wind erodi-bility group	Wind erodi-bility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
11A:														
Kempsville-----------	0-19	45-90	5-50	5-15	1.30-1.40	14.00-42.00	0.08-0.14	0.0-2.9	0.5-2.0	.24	.24	5	3	86
	19-37	20-82	5-50	18-34	1.30-1.45	4.00-14.00	0.12-0.18	0.0-2.9	0.5-1.0	.24	.24			
	37-65	45-80	4-27	20-45	1.35-1.65	1.40-14.00	0.12-0.18	0.0-2.9	0.0-0.5	.24	.24			
	65-150	45-91	5-29	5-30	1.30-1.60	4.00-142.00	0.08-0.15	0.0-2.9	0.0-0.5	.24	.24			
Emporia--------------	0-12	25-90	0-45	7-18	1.30-1.40	14.00-42.00	0.10-0.17	0.0-2.9	0.5-2.0	.24	.24	5	3	86
	12-42	25-80	5-45	18-35	1.35-1.45	4.00-14.00	0.10-0.18	0.0-2.9	0.0-0.5	.32	.32			
	42-62	10-80	5-45	10-50	1.45-1.60	0.10-14.00	0.08-0.18	3.0-5.9	0.0-0.2	.15	.15			
11B:														
Kempsville-----------	0-19	45-90	5-50	5-15	1.30-1.40	14.00-42.00	0.08-0.14	0.0-2.9	0.5-2.0	.24	.24	5	3	86
	19-37	20-82	5-50	18-34	1.30-1.45	4.00-14.00	0.12-0.18	0.0-2.9	0.5-1.0	.24	.24			
	37-65	45-80	4-27	20-45	1.35-1.65	1.40-14.00	0.12-0.18	0.0-2.9	0.0-0.5	.24	.24			
	65-150	45-91	5-29	5-30	1.30-1.60	4.00-142.00	0.08-0.15	0.0-2.9	0.0-0.5	.24	.24			
Emporia--------------	0-12	25-90	0-45	7-18	1.30-1.40	14.00-42.00	0.10-0.17	0.0-2.9	0.5-2.0	.24	.24	5	3	86
	12-42	25-80	5-45	18-35	1.35-1.45	4.00-14.00	0.10-0.18	0.0-2.9	0.0-0.5	.32	.32			
	42-62	10-80	5-45	10-50	1.45-1.60	0.10-14.00	0.08-0.18	3.0-5.9	0.0-0.2	.15	.15			
11C:														
Kempsville-----------	0-19	45-90	5-50	5-15	1.30-1.40	14.00-42.00	0.08-0.14	0.0-2.9	0.5-2.0	.24	.24	5	3	86
	19-37	20-82	5-50	18-34	1.30-1.45	4.00-14.00	0.12-0.18	0.0-2.9	0.5-1.0	.24	.24			
	37-65	45-80	4-27	20-45	1.35-1.65	1.40-14.00	0.12-0.18	0.0-2.9	0.0-0.5	.24	.24			
	65-150	45-91	5-29	5-30	1.30-1.60	4.00-142.00	0.08-0.15	0.0-2.9	0.0-0.5	.24	.24			
Emporia--------------	0-12	25-90	0-45	7-18	1.30-1.40	14.00-42.00	0.10-0.17	0.0-2.9	0.5-2.0	.24	.24	5	3	86
	12-42	25-80	5-45	18-35	1.35-1.45	4.00-14.00	0.10-0.18	0.0-2.9	0.0-0.5	.32	.32			
	42-62	10-80	5-45	10-50	1.45-1.60	0.10-14.00	0.08-0.18	3.0-5.9	0.0-0.2	.15	.15			
12A:														
Myatt----------------	0-7	30-88	1-45	8-25	1.30-1.60	4.00-14.00	0.16-0.24	0.0-2.9	0.5-4.0	.24	.24	5	5	56
	7-15	30-88	1-45	8-25	1.30-1.65	4.00-14.00	0.16-0.24	0.0-2.9	0.2-2.0	.28	.28			
	15-40	25-80	20-45	18-35	1.30-1.50	1.40-14.00	0.12-0.20	0.0-2.9	0.0-1.0	.15	.15			
	40-65	25-99	0-45	2-30	1.30-1.50	1.40-14.00	0.02-0.20	0.0-2.9	0.0-0.5	.05	.10			
Slagle---------------	0-13	24-82	5-50	8-18	1.30-1.45	14.00-42.00	0.10-0.14	0.0-2.9	0.5-2.0	.28	.28	5	3	86
	13-40	20-82	5-50	12-35	1.30-1.45	4.00-14.00	0.10-0.18	0.0-2.9	0.0-0.5	.24	.24			
	40-51	5-82	5-50	18-40	1.35-1.60	0.42-4.00	0.12-0.18	3.0-5.9	0.0-0.5	.24	.24			
	51-65	5-91	5-39	5-40	1.35-1.50	1.40-42.00	0.08-0.15	0.0-2.9	0.0-0.5	.24	.24			
13E:														
Nevarc---------------	0-6	15-80	5-75	8-18	1.30-1.50	14.00-42.00	0.08-0.18	0.0-2.9	0.5-2.0	.24	.24	5	3	86
	6-40	5-75	15-65	32-55	1.30-1.50	0.42-1.40	0.10-0.17	3.0-5.9	0.0-0.5	.20	.20			
	40-60	15-99	0-35	2-50	1.30-1.55	0.42-141.00	0.04-0.12	0.0-2.9	0.0-0.2	.20	.20			

Table 17.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
14. Pits, gravel														
15A:														
Rappahannock---------	0-12	5-25	75-95	0-10	0.10-0.60	4.00-14.00	0.22-0.26	0.0-2.9	20-65	---	---	2	8	0
	12-39	5-25	75-95	0-10	0.10-1.00	4.00-14.00	0.22-0.26	0.0-2.9	20-50	---	---			
	39-62	55-88	1-40	5-18	1.20-1.50	4.00-142.00	0.08-0.20	0.0-2.9	2.0-5.0	.17	.17			
16B:														
Remlik---------------	0-22	72-99	0-20	0-10	1.20-1.50	42.00-141.00	0.04-0.08	0.0-2.9	0.5-1.0	.10	.10	5	2	134
	22-38	45-82	5-30	8-30	1.20-1.35	4.00-14.00	0.10-0.17	0.0-2.9	0.0-0.5	.15	.15			
	38-70	45-82	5-30	4-20	1.25-1.40	4.00-42.00	0.04-0.16	0.0-2.9	0.0-0.2	.24	.24			
16C:														
Remlik---------------	0-22	72-99	0-20	0-10	1.20-1.50	42.00-141.00	0.04-0.08	0.0-2.9	0.5-1.0	.10	.10	5	2	134
	22-38	45-82	5-30	8-30	1.20-1.35	4.00-14.00	0.10-0.17	0.0-2.9	0.0-0.5	.15	.15			
	38-70	45-82	5-30	4-20	1.25-1.40	4.00-42.00	0.04-0.16	0.0-2.9	0.0-0.2	.24	.24			
16E:														
Remlik---------------	0-22	72-99	0-20	0-10	1.20-1.50	42.00-141.00	0.04-0.08	0.0-2.9	0.5-1.0	.10	.10	5	2	134
	22-38	45-82	5-30	8-30	1.20-1.35	4.00-14.00	0.10-0.17	0.0-2.9	0.0-0.5	.15	.15			
	38-70	45-82	5-30	4-20	1.25-1.40	4.00-42.00	0.04-0.16	0.0-2.9	0.0-0.2	.24	.24			
17D:														
Rion-----------------	0-7	45-85	5-50	5-20	1.30-1.50	14.00-42.00	0.08-0.12	0.0-2.9	0.5-2.0	.24	.24	3	3	86
	7-38	20-85	5-52	18-35	1.40-1.50	4.00-14.00	0.08-0.15	0.0-2.9	0.0-0.5	.20	.24			
	38-60	45-90	5-52	2-20	1.30-1.50	14.00-42.00	0.06-0.12	0.0-2.9	0.0-0.5	.20	.24			
18A:														
Riverview------------	0-15	10-52	28-90	10-25	1.20-1.40	4.50-14.00	0.12-0.20	0.0-2.9	1.0-4.0	.28	.28	5	5	56
	15-59	24-82	5-50	5-20	1.30-1.50	14.00-42.00	0.12-0.14	0.0-2.9	0.0-1.0	.24	.24			
	59-79	24-91	0-50	5-18	1.30-1.60	4.23-42.34	0.07-0.21	0.0-2.9	0.0-0.2	.28	.32			
19A:														
Roanoke--------------	0-5	5-80	5-75	10-27	1.20-1.50	4.00-14.00	0.14-0.20	0.0-2.9	0.5-2.0	.32	.32	5	8	0
	5-36	5-40	30-60	35-60	1.20-1.50	0.01-4.00	0.16-0.19	3.0-5.9	0.0-1.0	.20	.20			
	36-42	5-70	5-60	20-40	1.35-1.65	4.00-14.00	0.10-0.19	3.0-5.9	0.0-0.5	.15	.15			
	42-62	25-99	0-45	2-50	1.20-1.50	0.01-141.00	0.04-0.14	0.0-5.9	0.0-0.2	.24	.24			
20B:														
Rumford--------------	0-14	50-90	1-25	2-15	1.25-1.45	42.00-141.00	0.06-0.10	0.0-2.9	0.5-1.0	.10	.10	5	2	134
	14-38	45-85	3-20	8-20	1.25-1.45	14.00-42.00	0.10-0.15	0.0-2.9	0.0-0.5	.24	.24			
	38-55	45-90	1-25	4-20	1.25-1.50	14.00-100.00	0.08-0.15	0.0-2.9	0.0-0.2	.10	.10			
	55-99	45-99	0-25	2-18	1.25-1.50	14.00-141.00	0.04-0.10	0.0-2.9	0.0-0.2	.10	.10			

Table 17.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
20C:														
Rumford--------------	0-14	50-90	1-25	2-15	1.25-1.45	42.00-141.00	0.06-0.10	0.0-2.9	0.5-1.0	.10	.10	5	2	134
	14-38	45-85	3-20	8-20	1.25-1.45	14.00-42.00	0.10-0.15	0.0-2.9	0.0-0.5	.24	.24			
	38-55	45-90	1-25	4-20	1.25-1.50	14.00-100.00	0.08-0.15	0.0-2.9	0.0-0.2	.10	.10			
	55-99	45-99	0-25	2-18	1.25-1.50	14.00-141.00	0.04-0.10	0.0-2.9	0.0-0.2	.10	.10			
20D:														
Rumford--------------	0-14	50-90	1-25	2-15	1.25-1.45	42.00-141.00	0.06-0.10	0.0-2.9	0.5-1.0	.10	.10	5	2	134
	14-38	45-85	3-20	8-20	1.25-1.45	14.00-42.00	0.10-0.15	0.0-2.9	0.0-0.5	.24	.24			
	38-55	45-90	1-25	4-20	1.25-1.50	14.00-100.00	0.08-0.15	0.0-2.9	0.0-0.2	.10	.10			
	55-99	45-99	0-25	2-18	1.25-1.50	14.00-141.00	0.04-0.10	0.0-2.9	0.0-0.2	.10	.10			
21C:														
Slagle---------------	0-13	24-82	5-50	8-18	1.30-1.45	14.00-42.00	0.10-0.14	0.0-2.9	0.5-2.0	.28	.28	5	3	86
	13-40	20-82	5-50	12-35	1.30-1.45	4.00-14.00	0.10-0.18	0.0-2.9	0.0-0.5	.24	.24			
	40-51	5-82	5-50	18-40	1.35-1.60	0.42-4.00	0.12-0.18	3.0-5.9	0.0-0.5	.24	.24			
	51-65	5-91	5-39	5-40	1.35-1.50	1.40-42.00	0.08-0.15	0.0-2.9	0.0-0.5	.24	.24			
Kempsville-----------	0-19	45-90	5-50	5-15	1.30-1.40	14.00-42.00	0.08-0.14	0.0-2.9	0.5-2.0	.24	.24	5	3	86
	19-37	20-82	5-50	18-34	1.30-1.45	4.00-14.00	0.12-0.18	0.0-2.9	0.5-1.0	.24	.24			
	37-65	45-80	4-27	20-45	1.35-1.65	1.40-14.00	0.12-0.18	0.0-2.9	0.0-0.5	.24	.24			
	65-150	45-91	5-29	5-30	1.30-1.60	4.00-142.00	0.08-0.15	0.0-2.9	0.0-0.5	.24	.24			
22A:														
Slagle---------------	0-13	24-82	5-50	8-18	1.30-1.45	14.00-42.00	0.10-0.14	0.0-2.9	0.5-2.0	.28	.28	5	3	86
	13-40	20-82	5-50	12-35	1.30-1.45	4.00-14.00	0.10-0.18	0.0-2.9	0.0-0.5	.24	.24			
	40-51	5-82	5-50	18-40	1.35-1.60	0.42-4.00	0.12-0.18	3.0-5.9	0.0-0.5	.24	.24			
	51-65	5-91	5-39	5-40	1.35-1.50	1.40-42.00	0.08-0.15	0.0-2.9	0.0-0.5	.24	.24			
22B:														
Slagle---------------	0-13	24-82	5-50	8-18	1.30-1.45	14.00-42.00	0.10-0.14	0.0-2.9	0.5-2.0	.28	.28	5	3	86
	13-40	20-82	5-50	12-35	1.30-1.45	4.00-14.00	0.10-0.18	0.0-2.9	0.0-0.5	.24	.24			
	40-51	5-82	5-50	18-40	1.35-1.60	0.42-4.00	0.12-0.18	3.0-5.9	0.0-0.5	.24	.24			
	51-65	5-91	5-39	5-40	1.35-1.50	1.40-42.00	0.08-0.15	0.0-2.9	0.0-0.5	.24	.24			
23A:														
State----------------	0-17	20-88	1-75	5-20	1.25-1.40	4.00-42.00	0.08-0.20	0.0-2.9	0.5-2.0	.28	.28	5	3	86
	17-36	20-80	5-65	18-34	1.35-1.50	4.00-14.00	0.14-0.19	0.0-2.9	0.0-0.5	.15	.15			
	36-62	55-99	0-25	2-15	1.35-1.50	14.00-141.00	0.02-0.15	0.0-2.9	0.0-0.2	.28	.28			
23B:														
State----------------	0-17	20-88	1-75	5-20	1.25-1.40	4.00-42.00	0.08-0.20	0.0-2.9	0.5-2.0	.28	.28	5	3	86
	17-36	20-80	5-65	18-34	1.35-1.50	4.00-14.00	0.14-0.19	0.0-2.9	0.0-0.5	.15	.15			
	36-62	55-99	0-25	2-15	1.35-1.50	14.00-141.00	0.02-0.15	0.0-2.9	0.0-0.2	.28	.28			

Table 17.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
23C:														
State----------------	0-17	20-88	1-75	5-20	1.25-1.40	4.00-42.00	0.08-0.20	0.0-2.9	0.5-2.0	.28	.28	5	3	86
	17-36	20-80	5-65	18-34	1.35-1.50	4.00-14.00	0.14-0.19	0.0-2.9	0.0-0.5	.15	.15			
	36-62	55-99	0-25	2-15	1.35-1.50	14.00-141.00	0.02-0.15	0.0-2.9	0.0-0.2	.28	.28			
24A:														
Suffolk--------------	0-8	60-88	1-30	6-18	1.35-1.45	14.00-42.00	0.10-0.16	0.0-2.9	0.5-2.0	.20	.20	5	3	86
	8-43	35-80	5-30	18-34	1.40-1.50	4.00-14.00	0.10-0.15	0.0-2.9	0.0-0.5	.15	.15			
	43-65	75-100	0-20	4-10	1.40-1.50	14.00-141.00	0.04-0.10	0.0-2.9	0.0-0.2	.28	.28			
24B:														
Suffolk--------------	0-8	60-88	1-30	6-18	1.35-1.45	14.00-42.00	0.10-0.16	0.0-2.9	0.5-2.0	.20	.20	5	3	86
	8-43	35-80	5-30	18-34	1.40-1.50	4.00-14.00	0.10-0.15	0.0-2.9	0.0-0.5	.15	.15			
	43-65	75-100	0-20	4-10	1.40-1.50	14.00-141.00	0.04-0.10	0.0-2.9	0.0-0.2	.28	.28			
25B:														
Tarboro--------------	0-7	75-100	0-20	3-12	1.60-1.75	42.00-141.00	0.05-0.09	0.0-2.9	0.5-1.0	.10	.10	5	2	134
	7-62	75-100	0-20	2-8	1.60-1.75	141.00-141.00	0.02-0.06	0.0-2.9	0.0-0.2	.10	.10			
Bojac----------------	0-12	50-88	0-45	3-8	1.20-1.50	14.00-42.00	0.08-0.16	0.0-2.9	0.5-2.0	.28	.28	4	3	86
	12-46	35-80	5-45	11-16	1.35-1.55	14.00-42.00	0.08-0.16	0.0-2.9	0.0-0.5	.32	.32			
	46-65	75-99	0-25	1-8	1.30-1.50	42.00-141.00	0.02-0.07	0.0-2.9	0.0-0.2	.20	.20			
26A:														
Tomotley-------------	0-5	20-88	1-75	5-20	1.30-1.60	14.00-42.00	0.10-0.22	0.0-2.9	1.0-6.0	.24	.24	5	3	86
	5-45	20-80	5-70	18-34	1.30-1.50	4.00-14.00	0.12-0.20	0.0-2.9	0.5-1.0	.15	.15			
	45-62	25-99	0-45	2-45	1.30-1.60	1.40-141.00	0.02-0.18	0.0-2.9	0.0-0.5	.20	.24			
Roanoke--------------	0-5	5-80	5-75	10-27	1.20-1.50	4.00-14.00	0.14-0.20	0.0-2.9	0.5-2.0	.32	.32	5	8	0
	5-36	5-40	30-60	35-60	1.20-1.50	0.01-4.00	0.16-0.19	3.0-5.9	0.0-1.0	.20	.20			
	36-42	5-70	5-60	20-40	1.35-1.65	4.00-14.00	0.10-0.19	3.0-5.9	0.0-0.5	.15	.15			
	42-62	25-99	0-45	2-50	1.20-1.50	0.01-141.00	0.04-0.14	0.0-5.9	0.0-0.2	.24	.24			
27C.														
Udorthents														
28A:														
Wehadkee-------------	0-10	15-80	5-75	5-20	1.35-1.60	14.00-42.00	0.10-0.22	0.0-2.9	2.0-5.0	.24	.24	5	6	48
	10-44	15-75	5-75	15-35	1.30-1.50	4.00-14.00	0.16-0.20	0.0-2.9	0.0-1.0	.32	.32			
	44-70	25-99	0-45	2-35	1.30-1.50	4.00-141.00	0.04-0.20	0.0-2.9	0.0-1.0	.24	.24			

Table 17.—Physical Soil Properties—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
29A:														
Wickham--------------	0-15	30-90	1-45	4-10	1.60-1.70	14.00-42.00	0.05-0.08	0.0-2.9	0.5-1.0	.32	.32	5	3	86
	15-19	25-75	5-45	10-25	1.30-1.50	4.00-14.00	0.12-0.17	0.0-2.9	0.0-0.5	.24	.24			
	19-37	25-75	5-45	18-35	1.30-1.50	4.00-14.00	0.12-0.17	0.0-2.9	0.0-0.5	.15	.15			
	37-70	50-99	0-25	2-30	1.40-1.70	4.00-141.00	0.05-0.15	0.0-2.9	0.0-0.2	.28	.28			
29B:														
Wickham--------------	0-15	30-90	1-45	4-10	1.60-1.70	14.00-42.00	0.05-0.08	0.0-2.9	0.5-1.0	.32	.32	5	3	86
	15-19	25-75	5-45	10-25	1.30-1.50	4.00-14.00	0.12-0.17	0.0-2.9	0.0-0.5	.24	.24			
	19-37	25-75	5-45	18-35	1.30-1.50	4.00-14.00	0.12-0.17	0.0-2.9	0.0-0.5	.15	.15			
	37-70	50-99	0-25	2-30	1.40-1.70	4.00-141.00	0.05-0.15	0.0-2.9	0.0-0.2	.28	.28			
30E:														
Wateree--------------	0-9	44-85	5-49	5-15	1.25-1.45	42.00-141.00	0.09-0.12	0.0-2.9	0.5-2.0	.24	.24	3	3	86
	9-22	44-85	5-49	7-18	1.30-1.50	42.00-141.00	0.10-0.12	0.0-2.9	0.0-0.5	.24	.24			
	22-80	---	---	---	---	0.00-0.42	---	---	---	---	---			
Rock outcrop.														
W.														
Water														

Table 18.—Chemical Soil Properties

(Absence of an entry indicates that data were not estimated)

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	Inches	meq/100 g	meq/100 g	pH
1A:				
Altavista------------	0-16	2.9-10	2.2-7.7	4.0-6.5
	16-40	6.3-13	4.7-10	4.0-6.0
	40-65	0.7-8.1	0.5-6.1	4.0-6.0
1B:				
Altavista------------	0-16	2.9-10	2.2-7.7	4.0-6.5
	16-40	6.3-13	4.7-10	4.0-6.0
	40-65	0.7-8.1	0.5-6.1	4.0-6.0
2B:				
Appling--------------	0-10	1.6-6.5	1.2-4.9	4.5-6.5
	10-42	3.5-7.1	2.6-5.3	4.5-5.5
	42-60	2.0-6.1	1.5-4.6	4.5-5.5
	60-72	1.0-11	0.5-8.0	3.6-6.0
2C:				
Appling--------------	0-10	1.6-6.5	1.2-4.9	4.5-6.5
	10-42	3.5-7.1	2.6-5.3	4.5-5.5
	42-60	2.0-6.1	1.5-4.6	4.5-5.5
	60-72	1.0-11	0.5-8.0	3.6-6.0
3A:				
Bama-----------------	0-13	2.9-7.8	2.2-5.8	4.5-6.5
	13-26	4.5-9.1	3.4-6.8	4.5-6.0
	26-70	5.0-9.9	3.8-7.4	4.5-5.5
3B:				
Bama-----------------	0-13	2.9-7.8	2.2-5.8	4.5-6.5
	13-26	4.5-9.1	3.4-6.8	4.5-6.0
	26-70	5.0-9.9	3.8-7.4	4.5-5.5
4A:				
Bibb-----------------	0-15	1.6-13	1.2-9.6	4.5-5.5
	15-42	3.1-9.0	2.3-6.8	4.5-5.5
	42-65	1.6-11	1.2-9.6	4.5-5.5
Chastain-------------	0-13	6.0-22	4.5-17	4.5-6.0
	13-36	11-22	8.2-16	4.5-6.0
	36-80	2.8-9.2	2.1-6.9	4.5-6.0
5B:				
Bojac----------------	0-12	1.9-6.5	1.4-4.9	4.0-6.5
	12-46	0.8-5.1	2.1-3.8	4.0-6.5
	46-65	0.2-2.5	0.2-1.8	4.0-6.5
6B:				
Cecil----------------	0-9	1.6-4.2	1.2-3.2	4.5-6.5
	9-14	2.0-4.6	1.5-3.5	4.5-5.5
	14-63	3.5-7.5	2.6-5.6	4.5-5.5
	63-83	1.0-11	0.5-8.0	3.6-6.0
7A:				
Chastain-------------	0-13	6.0-22	4.5-17	4.5-6.0
	13-36	11-22	8.2-16	4.5-6.0
	36-80	2.8-9.2	2.1-6.9	4.5-6.0

Table 18.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	Inches	meq/100 g	meq/100 g	pH
8A:				
Chewacla	0-5	4.8-16	3.6-12	4.5-6.5
	5-13	5.6-13	4.2-9.9	4.5-6.5
	13-40	5.6-13	4.2-9.9	4.5-6.5
	40-60	0.0-16	0.5-12	3.6-6.5
9C:				
Helena	0-8	2.4-9.5	1.8-7.1	4.5-6.5
	8-15	2.5-9.2	1.9-6.9	3.5-5.5
	15-50	7.5-16	5.6-12	4.5-5.5
	50-60	---	1.9-9.5	3.5-5.5
Appling	0-10	1.6-6.5	1.2-4.9	4.5-6.5
	10-42	3.5-7.1	2.6-5.3	4.5-5.5
	42-60	2.0-6.1	1.5-4.6	4.5-5.5
	60-72	1.0-11	0.5-8.0	3.6-6.0
10E:				
Kempsville	0-19	2.4-8.2	1.8-6.2	4.5-6.0
	19-37	4.1-8.2	3.1-6.2	4.5-6.0
	37-65	4.5-9.9	3.4-7.4	4.5-6.0
	65-150	1.2-8.6	0.9-6.5	4.5-6.0
Emporia	0-12	2.9-9.0	2.2-6.8	4.5-6.0
	12-42	4.5-9.9	3.4-7.4	4.5-6.0
	42-62	1.2-11	0.9-8.3	4.5-6.0
Remlik	0-22	1.1-4.8	0.8-3.6	4.0-6.0
	22-38	2.0-8.6	1.5-6.5	4.0-6.0
	38-70	1.0-5.5	0.8-4.1	4.0-6.0
11A:				
Kempsville	0-19	2.4-8.2	1.8-6.2	4.5-6.0
	19-37	4.1-8.2	3.1-6.2	4.5-6.0
	37-65	4.5-9.9	3.4-7.4	4.5-6.0
	65-150	1.2-8.6	0.9-6.5	4.5-6.0
Emporia	0-12	2.9-9.0	2.2-6.8	4.5-6.0
	12-42	4.5-9.9	3.4-7.4	4.5-6.0
	42-62	1.2-11	0.9-8.3	4.5-6.0
11B:				
Kempsville	0-19	2.4-8.2	1.8-6.2	4.5-6.0
	19-37	4.1-8.2	3.1-6.2	4.5-6.0
	37-65	4.5-9.9	3.4-7.4	4.5-6.0
	65-150	1.2-8.6	0.9-6.5	4.5-6.0
Emporia	0-12	2.9-9.0	2.2-6.8	4.5-6.0
	12-42	4.5-9.9	3.4-7.4	4.5-6.0
	42-62	1.2-11	0.9-8.3	4.5-6.0
11C:				
Kempsville	0-19	2.4-8.2	1.8-6.2	4.5-6.0
	19-37	4.1-8.2	3.1-6.2	4.5-6.0
	37-65	4.5-9.9	3.4-7.4	4.5-6.0
	65-150	1.2-8.6	0.9-6.5	4.5-6.0
Emporia	0-12	2.9-9.0	2.2-6.8	4.5-6.0
	12-42	4.5-9.9	3.4-7.4	4.5-6.0
	42-62	1.2-11	0.9-8.3	4.5-6.0

Table 18.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	Inches	meq/100 g	meq/100 g	pH
12A:				
Myatt----------------	0-7	3.1-15	2.3-11	4.5-6.0
	7-15	2.6-11	1.9-8.1	4.5-6.0
	15-40	4.5-11	3.4-8.2	4.0-5.5
	40-65	0.5-8.6	0.4-6.5	4.0-5.5
Slagle---------------	0-13	3.1-9.0	2.3-6.8	3.6-5.5
	13-40	3.0-9.9	2.2-7.4	3.6-5.5
	40-51	4.5-11	3.4-8.3	3.6-5.5
	51-65	1.2-9.1	0.9-6.8	3.6-5.5
13E:				
Nevarc---------------	0-6	3.1-9.0	2.3-6.8	4.0-6.0
	6-40	8.0-15	6.0-11	4.0-6.0
	40-60	0.5-14	0.4-10	4.0-6.0
14.				
Pits, gravel				
15A:				
Rappahannock---------	0-12	45-146	34-110	5.1-8.4
	12-39	45-113	34-84	5.1-8.4
	39-62	6.2-27	4.7-20	5.1-8.4
16B:				
Remlik---------------	0-22	1.1-4.8	0.8-3.6	4.0-6.0
	22-38	2.0-8.6	1.5-6.5	4.0-6.0
	38-70	1.0-5.5	0.8-4.1	4.0-6.0
16C:				
Remlik---------------	0-22	1.1-4.8	0.8-3.6	4.0-6.0
	22-38	2.0-8.6	1.5-6.5	4.0-6.0
	38-70	1.0-5.5	0.8-4.1	4.0-6.0
16E:				
Remlik---------------	0-22	1.1-4.8	0.8-3.6	4.0-6.0
	22-38	2.0-8.6	1.5-6.5	4.0-6.0
	38-70	1.0-5.5	0.8-4.1	4.0-6.0
17D:				
Rion-----------------	0-7	4.0-7.0	---	4.5-6.5
	7-38	4.0-10	---	4.5-6.5
	38-60	2.0-8.0	---	4.5-6.5
18A:				
Riverview------------	0-15	4.8-15	3.6-11	4.5-7.3
	15-59	1.0-5.0	---	4.5-6.5
	59-79	1.2-5.6	0.9-4.2	4.5-6.0
19A:				
Roanoke--------------	0-5	3.6-11	2.7-8.4	3.5-5.5
	5-36	8.8-17	6.6-13	3.5-5.5
	36-42	5.0-11	3.8-8.3	3.5-5.5
	42-62	0.5-13	0.4-9.7	3.5-5.5
20B:				
Rumford--------------	0-14	1.6-6.0	1.2-4.5	3.5-5.5
	14-38	2.0-6.1	1.5-4.6	3.5-6.0
	38-55	1.5-6.1	1.1-4.6	3.5-6.0
	55-99	0.5-5.6	0.4-4.2	3.5-6.5

Table 18.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	Inches	meq/100 g	meq/100 g	pH
20C:				
Rumford	0-14	1.6-6.0	1.2-4.5	3.5-5.5
	14-38	2.0-6.1	1.5-4.6	3.5-6.0
	38-55	1.5-6.1	1.1-4.6	3.5-6.0
	55-99	0.5-5.6	0.4-4.2	3.5-6.5
20D:				
Rumford	0-14	1.6-6.0	1.2-4.5	3.5-5.5
	14-38	2.0-6.1	1.5-4.6	3.5-6.0
	38-55	1.5-6.1	1.1-4.6	3.5-6.0
	55-99	0.5-5.6	0.4-4.2	3.5-6.5
21C:				
Slagle	0-13	3.1-9.0	2.3-6.8	3.6-5.5
	13-40	3.0-9.9	2.2-7.4	3.6-5.5
	40-51	4.5-11	3.4-8.3	3.6-5.5
	51-65	1.2-9.1	0.9-6.8	3.6-5.5
Kempsville	0-19	2.4-8.2	1.8-6.2	4.5-6.0
	19-37	4.1-8.2	3.1-6.2	4.5-6.0
	37-65	4.5-9.9	3.4-7.4	4.5-6.0
	65-150	1.2-8.6	0.9-6.5	4.5-6.0
22A:				
Slagle	0-13	3.1-9.0	2.3-6.8	3.6-5.5
	13-40	3.0-9.9	2.2-7.4	3.6-5.5
	40-51	4.5-11	3.4-8.3	3.6-5.5
	51-65	1.2-9.1	0.9-6.8	3.6-5.5
22B:				
Slagle	0-13	3.1-9.0	2.3-6.8	3.6-5.5
	13-40	3.0-9.9	2.2-7.4	3.6-5.5
	40-51	4.5-11	3.4-8.3	3.6-5.5
	51-65	1.2-9.1	0.9-6.8	3.6-5.5
23A:				
State	0-17	2.9-12	2.2-8.6	3.5-5.5
	17-36	6.3-13	4.7-9.8	3.5-5.5
	36-62	0.7-6.4	0.5-4.8	3.5-6.5
23B:				
State	0-17	2.9-12	2.2-8.6	3.5-5.5
	17-36	6.3-13	4.7-9.8	3.5-5.5
	36-62	0.7-6.4	0.5-4.8	3.5-6.5
23C:				
State	0-17	2.9-12	2.2-8.6	3.5-5.5
	17-36	6.3-13	4.7-9.8	3.5-5.5
	36-62	0.7-6.4	0.5-4.8	3.5-6.5
24A:				
Suffolk	0-8	2.6-9.0	2.0-6.8	3.6-6.0
	8-43	2.5-9.4	1.9-7.0	3.6-6.0
	43-65	1.0-3.6	0.8-2.7	3.6-6.0
24B:				
Suffolk	0-8	2.6-9.0	2.0-6.8	3.6-6.0
	8-43	2.5-9.4	1.9-7.0	3.6-6.0
	43-65	1.0-3.6	0.8-2.7	3.6-6.0

Table 18.—Chemical Soil Properties—Continued

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	Inches	meq/100 g	meq/100 g	pH
25B:				
Tarboro	0-7	2.2-6.5	1.6-4.8	5.1-6.5
	7-62	0.7-3.9	0.5-2.9	5.1-6.5
Bojac	0-12	1.9-6.5	1.4-4.9	4.0-6.5
	12-46	0.8-5.1	2.1-3.8	4.0-6.5
	46-65	0.2-2.5	0.2-1.8	4.0-6.5
26A:				
Tomotley	0-5	4.0-20	3.0-15	3.5-5.5
	5-45	7.4-14	5.6-11	3.5-5.5
	45-62	1.0-17	0.5-13	3.5-6.0
Roanoke	0-5	3.6-11	2.7-8.4	3.5-5.5
	5-36	8.8-17	6.6-13	3.5-5.5
	36-42	5.0-11	3.8-8.3	3.5-5.5
	42-62	0.5-13	0.4-9.7	3.5-5.5
27C. Udorthents				
28A:				
Wehadkee	0-10	6.2-18	4.7-14	4.5-6.5
	10-44	5.2-14	3.9-11	4.5-6.5
	44-70	0.7-14	0.5-11	4.5-6.5
29A:				
Wickham	0-15	2.5-5.8	1.9-4.3	4.5-6.0
	15-19	3.5-9.9	2.6-7.4	4.5-6.0
	19-37	6.3-13	4.7-10	4.5-6.0
	37-70	0.7-11	0.5-8.3	4.5-6.0
29B:				
Wickham	0-15	2.5-5.8	1.9-4.3	4.5-6.0
	15-19	3.5-9.9	2.6-7.4	4.5-6.0
	19-37	6.3-13	4.7-10	4.5-6.0
	37-70	0.7-11	0.5-8.3	4.5-6.0
30E:				
Wateree	0-9	2.4-8.2	1.8-6.2	4.5-6.0
	9-22	1.8-5.6	1.3-4.2	4.5-6.0
	22-80	---	---	---
Rock outcrop.				
W. Water				

Table 19.—Water Features

(Depths of layers are in feet. See text for definitions of terms used in this table. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated)

Map symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
1A:										
Altavista	C	Low	Jan-Apr	1.5-2.5	>6.0	---	---	None	Very brief	Very rare
			May-Nov	---	---	---	---	None	Very brief	Very rare
			Dec	1.5-2.5	>6.0	---	---	None	Very brief	Very rare
1B:										
Altavista	C	Low	Jan-Apr	1.5-2.5	>6.0	---	---	None	Very brief	Very rare
			May-Nov	---	---	---	---	None	Very brief	Very rare
			Dec	1.5-2.5	>6.0	---	---	None	Very brief	Very rare
2B:										
Appling	B	Medium	Jan-Dec	---	---	---	---	None	---	None
2C:										
Appling	B	Medium	Jan-Dec	---	---	---	---	None	---	None
3A:										
Bama	B	Low	Jan-Dec	---	---	---	---	None	---	None
3B:										
Bama	B	Low	Jan-Dec	---	---	---	---	None	---	None
4A:										
Bibb	D	Very high	Jan-Jun	0.0-1.0	>6.0	---	---	None	Brief	Frequent
			Jul-Oct	---	---	---	---	None	---	None
			Nov-Dec	0.0-1.0	>6.0	---	---	None	Brief	Frequent
Chastain	D	Very high	Jan-Jun	0.0-1.0	>6.0	---	---	None	Brief	Frequent
			Jul-Oct	---	---	---	---	None	---	None
			Nov-Dec	0.0-1.0	>6.0	---	---	None	Brief	Frequent
5B:										
Bojac	B	Very low	Jan-May	4.0-6.0	>6.0	---	---	None	Brief	Very rare
			Jun-Oct	---	---	---	---	None	Brief	Very rare
			Nov-Dec	4.0-6.0	>6.0	---	---	None	Brief	Very rare
6B:										
Cecil	B	Medium	Jan-Dec	---	---	---	---	None	---	None

Table 19.—Water Features—Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				Ft	Ft	Ft				
7A:										
Chastain------------------	D	Negligible	Jan-May	0	>6.0	0.0-3.0	Long	Frequent	Very long	Frequent
			Jun	0.0-6.6	>6.0	0.0-3.0	Long	Frequent	Very long	Frequent
			Jul-Oct	0.0-6.6	>6.0	0.0-3.0	Brief	Occasional	---	None
			Nov-Dec	0	>6.0	0.0-3.0	Long	Frequent	Very long	Frequent
8A:										
Chewacla------------------	C	Very high	Jan-Apr	0.5-1.5	>6.0	---	---	None	Long	Occasional
			May-Oct	---	---	---	---	None	---	None
			Nov-Dec	0.5-1.5	>6.0	---	---	None	Long	Occasional
9C:										
Helena--------------------	C	Medium	Jan-Apr	1.0-2.5	1.6-3.3	---	---	None	---	None
			May-Dec	---	---	---	---	None	---	None
Appling-------------------	B	Medium	Jan-Dec	---	---	---	---	None	---	None
10E:										
Kempsville----------------	B	Medium	Jan-Dec	---	---	---	---	None	---	None
Emporia-------------------	C	High	Jan-Apr	3.0-4.5	3.3-5.0	---	---	None	---	None
			May-Oct	---	---	---	---	None	---	None
			Nov-Dec	3.0-4.5	3.3-5.0	---	---	None	---	None
Remlik--------------------	A	Medium	Jan-Mar	4.0-6.0	4.3-6.6	---	---	None	---	None
			Apr-Nov	---	---	---	---	None	---	None
			Dec	4.0-6.0	4.3-6.6	---	---	None	---	None
11A:										
Kempsville----------------	B	Very low	Jan-Dec	---	---	---	---	None	---	None
Emporia-------------------	C	Low	Jan-Apr	3.0-4.5	3.3-5.0	---	---	None	---	None
			May-Oct	---	---	---	---	None	---	None
			Nov-Dec	3.0-4.5	3.3-5.0	---	---	None	---	None
11B:										
Kempsville----------------	B	Very low	Jan-Dec	---	---	---	---	None	---	None
Emporia-------------------	C	Low	Jan-Apr	3.0-4.5	3.3-5.0	---	---	None	---	None
			May-Oct	---	---	---	---	None	---	None
			Nov-Dec	3.0-4.5	3.3-5.0	---	---	None	---	None
11C:										
Kempsville----------------	B	Low	Jan-Dec	---	---	---	---	None	---	None
Emporia-------------------	C	Medium	Jan-Apr	3.0-4.5	3.3-5.0	---	---	None	---	None
			May-Oct	---	---	---	---	None	---	None
			Nov-Dec	3.0-4.5	3.3-5.0	---	---	None	---	None

Table 19.—Water Features—Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	Ft	Ft				
12A:										
Myatt	D	Very high	Jan-Apr	0.0-1.0	>6.0	---	---	None	---	None
			May-Oct	---	---	---	---	None	---	None
			Nov-Dec	0.0-1.0	>6.0	---	---	None	---	None
Slagle	C	Low	Jan-Apr	4.0-6.0	4.3-6.6	---	---	None	---	None
			May-Oct	---	---	---	---	None	---	None
			Nov-Dec	4.0-6.0	4.3-6.6	---	---	None	---	None
13E:										
Nevarc	C	High	Jan-Apr	1.5-3.0	1.6-4.0	---	---	None	---	None
			May-Nov	---	---	---	---	None	---	None
			Dec	1.5-3.0	1.6-4.0	---	---	None	---	None
14:										
Pits, gravel	A	---	Jan-Dec	---	---	---	---	None	---	None
15A:										
Rappahannock	D	Negligible	Jan-Dec	0	>6.0	0.0-2.0	Very brief	Frequent	Very brief	Frequent
16B:										
Remlik	A	Very low	Jan-Mar	4.0-6.0	4.3-6.6	---	---	None	---	None
			Apr-Nov	---	---	---	---	None	---	None
			Dec	4.0-6.0	4.3-6.6	---	---	None	---	None
16C:										
Remlik	A	Low	Jan-Mar	4.0-6.0	4.3-6.6	---	---	None	---	None
			Apr-Nov	---	---	---	---	None	---	None
			Dec	4.0-6.0	4.3-6.6	---	---	None	---	None
16E:										
Remlik	A	Medium	Jan-Mar	4.0-6.0	4.3-6.6	---	---	None	---	None
			Apr-Nov	---	---	---	---	None	---	None
			Dec	4.0-6.0	4.3-6.6	---	---	None	---	None
17D:										
Rion	B	High	Jan-Dec	---	---	---	---	None	---	None
18A:										
Riverview	B	Low	Jan-Mar	3.0-5.0	>6.0	---	---	None	Brief	Occasional
			Apr-Nov	---	---	---	---	None	---	None
			Dec	3.0-5.0	>6.0	---	---	None	Brief	Occasional
19A:										
Roanoke	D	Negligible	Jan-May	0.0-1.0	>6.0	0.0-1.0	Brief	Occasional	---	None
			Jun-Oct	---	---	---	---	None	---	None
			Nov-Dec	0.0-1.0	>6.0	0.0-1.0	Brief	Occasional	---	None

Table 19.—Water Features—Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	Ft	Ft				
20B:										
Rumford	B	Very low	Jan-Dec	---	---	---	---	None	---	None
20C:										
Rumford	B	Low	Jan-Dec	---	---	---	---	None	---	None
20D:										
Rumford	B	Low	Jan-Dec	---	---	---	---	None	---	None
21C:										
Slagle	C	Medium	Jan-Apr	4.0-6.0	4.3-6.6	---	---	None	---	None
			May-Oct	---	---	---	---	None	---	None
			Nov-Dec	4.0-6.0	4.3-6.6	---	---	None	---	None
Kempsville	B	Low	Jan-Dec	---	---	---	---	None	---	None
22A:										
Slagle	C	Low	Jan-Apr	4.0-6.0	4.3-6.6	---	---	None	---	None
			May-Oct	---	---	---	---	None	---	None
			Nov-Dec	4.0-6.0	4.3-6.6	---	---	None	---	None
22B:										
Slagle	C	Low	Jan-Apr	4.0-6.0	4.3-6.6	---	---	None	---	None
			May-Oct	---	---	---	---	None	---	None
			Nov-Dec	4.0-6.0	4.3-6.6	---	---	None	---	None
23A:										
State	B	Low	Jan-Jun	4.0-6.0	>6.0	---	---	None	Brief	Very rare
			Jul-Nov	---	---	---	---	None	Brief	Very rare
			Dec	4.0-6.0	>6.0	---	---	None	Brief	Very rare
23B:										
State	B	Low	Jan-Jun	4.0-6.0	>6.0	---	---	None	Brief	Very rare
			Jul-Nov	---	---	---	---	None	Brief	Very rare
			Dec	4.0-6.0	>6.0	---	---	None	Brief	Very rare
23C:										
State	B	Medium	Jan-Jun	4.0-6.0	>6.0	---	---	None	Brief	Very rare
			Jul-Nov	---	---	---	---	None	Brief	Very rare
			Dec	4.0-6.0	>6.0	---	---	None	Brief	Very rare
24A:										
Suffolk	B	Low	Jan-Dec	---	---	---	---	None	---	None
24B:										
Suffolk	B	Low	Jan-Dec	---	---	---	---	None	---	None

Table 19.—Water Features—Continued

Map symbol and soil name	Hydro-logic group	Surface runoff	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
				Ft	Ft	Ft				
25B:										
Tarboro-------------------	A	Very low	Jan-Dec	---	---	---	---	None	Brief	Very rare
Bojac---------------------	B	Very low	Jan-May	4.0-6.0	>6.0	---	---	None	Brief	Very rare
			Jun-Oct	---	---	---	---	None	Brief	Very rare
			Nov-Dec	4.0-6.0	>6.0	---	---	None	Brief	Very rare
26A:										
Tomotley------------------	B/D	Very high	Jan-Apr	0.0-1.0	>6.0	---	---	None	Brief	Rare
			May-Oct	---	---	---	---	None	Brief	Rare
			Nov-Dec	0.0-1.0	>6.0	---	---	None	Brief	Rare
Roanoke-------------------	D	Very high	Jan-May	0.0-1.0	>6.0	---	---	None	Brief	Rare
			Jun-Oct	---	---	---	---	None	Brief	Rare
			Nov-Dec	0.0-1.0	>6.0	---	---	None	Brief	Rare
27C. Udorthents										
28A:										
Wehadkee------------------	D	Very high	Jan-Jun	0.0-1.0	>6.0	---	---	None	Long	Frequent
			Jul-Oct	---	---	---	---	None	---	None
			Nov-Dec	0.0-1.0	>6.0	---	---	None	Long	Frequent
29A:										
Wickham-------------------	B	Low	Jan-Dec	---	---	---	---	None	Brief	Very rare
29B:										
Wickham-------------------	B	Low	Jan-Dec	---	---	---	---	None	Brief	Very rare
30E:										
Wateree-------------------	B	Very high	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop--------------	D	Very high	Jan-Dec	---	---	---	---	None	---	None
W. Water										

Table 20.—Soil Features

(See text for definitions of terms used in this table. Absence of an entry indicates that the feature is not a concern or that data were not estimated)

Map symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Hardness		Uncoated steel	Concrete
		In				
1A:						
Altavista	---	---	---	None	Moderate	Moderate
1B:						
Altavista	---	---	---	None	Moderate	Moderate
2B:						
Appling	---	---	---	None	Moderate	Moderate
2C:						
Appling	---	---	---	None	Moderate	Moderate
3A:						
Bama	---	---	---	None	Low	Moderate
3B:						
Bama	---	---	---	None	Low	Moderate
4A:						
Bibb	---	---	---	None	High	Moderate
Chastain	---	---	---	None	High	High
5B:						
Bojac	---	---	---	None	Low	High
6B:						
Cecil	---	---	---	None	High	High
7A:						
Chastain	---	---	---	None	High	High
8A:						
Chewacla	---	---	---	None	High	Moderate
9C:						
Helena	---	---	---	None	High	High
Appling	---	---	---	None	Moderate	Moderate
10E:						
Kempsville	---	---	---	None	Low	Moderate
Emporia	---	---	---	None	Moderate	High
Remlik	---	---	---	None	Low	Moderate
11A:						
Kempsville	---	---	---	None	Low	Moderate
Emporia	---	---	---	None	Moderate	High
11B:						
Kempsville	---	---	---	None	Low	Moderate
Emporia	---	---	---	None	Moderate	High

Table 20.—Soil Features—Continued

Map symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Hardness		Uncoated steel	Concrete
		In				
11C:						
Kempsville----------	---	---	---	None	Low	Moderate
Emporia-------------	---	---	---	None	Moderate	High
12A:						
Myatt---------------	---	---	---	None	High	High
Slagle--------------	---	---	---	None	Moderate	High
13E:						
Nevarc--------------	---	---	---	None	High	High
14.						
Pits, gravel						
15A:						
Rappahannock--------	---	---	---	None	High	High
16B:						
Remlik--------------	---	---	---	None	Low	Moderate
16C:						
Remlik--------------	---	---	---	None	Low	Moderate
16E:						
Remlik--------------	---	---	---	None	Low	Moderate
17D:						
Rion----------------	---	---	---	None	Moderate	High
18A:						
Riverview-----------	---	---	---	None	Low	Moderate
19A:						
Roanoke-------------	---	---	---	None	High	High
20B:						
Rumford-------------	---	---	---	None	Low	High
20C:						
Rumford-------------	---	---	---	None	Low	High
20D:						
Rumford-------------	---	---	---	None	Low	High
21C:						
Slagle--------------	---	---	---	None	Moderate	High
Kempsville----------	---	---	---	None	Low	Moderate
22A:						
Slagle--------------	---	---	---	None	Moderate	High
22B:						
Slagle--------------	---	---	---	None	Moderate	High
23A:						
State---------------	---	---	---	None	Moderate	High

Table 20.—Soil Features—Continued

Map symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Hardness		Uncoated steel	Concrete
		In				
23B:						
State	---	---	---	None	Moderate	High
23C:						
State	---	---	---	None	Moderate	High
24A:						
Suffolk	---	---	---	None	Moderate	High
24B:						
Suffolk	---	---	---	None	Moderate	High
25B:						
Tarboro	---	---	---	None	Low	Moderate
Bojac	---	---	---	None	Low	High
26A:						
Tomotley	---	---	---	None	High	High
Roanoke	---	---	---	None	High	High
27C.						
Udorthents						
28A:						
Wehadkee	---	---	---	None	High	Moderate
29A:						
Wickham	---	---	---	None	Moderate	High
29B:						
Wickham	---	---	---	None	Moderate	High
30E:						
Wateree	Paralithic bedrock	20-40	Moderately cemented	None	Low	High
Rock outcrop	Lithic bedrock	0-0	Indurated	None	---	---
W.						
Water						

Table 21.—Taxonomic Classification of the Soils

Soil name	Family or higher taxonomic class
Altavista	Fine-loamy, mixed, semiactive, thermic Aquic Hapludults
Appling	Fine, kaolinitic, thermic Typic Kanhapludults
Bama	Fine-loamy, siliceous, subactive, thermic Typic Paleudults
Bibb	Coarse-loamy, siliceous, active, acid, thermic Typic Fluvaquents
Bojac	Coarse-loamy, mixed, semiactive, thermic Typic Hapludults
Cecil	Fine, kaolinitic, thermic Typic Kanhapludults
Chastain	Fine, mixed, semiactive, acid, thermic Typic Fluvaquents
Chewacla	Fine-loamy, mixed, active, thermic Fluvaquentic Dystrudepts
Emporia	Fine-loamy, siliceous, subactive, thermic Typic Hapludults
Helena	Fine, mixed, semiactive, thermic Aquic Hapludults
Kempsville	Fine-loamy, siliceous, subactive, thermic Typic Hapludults
Myatt	Fine-loamy, siliceous, active, thermic Typic Endoaquults
Nevarc	Fine, mixed, subactive, thermic Aquic Hapludults
Rappahannock	Loamy, mixed, euic, thermic Terric Sulfisaprists
Remlik	Loamy, siliceous, subactive, thermic Arenic Hapludults
Rion	Fine-loamy, mixed, semiactive, thermic Typic Hapludults
Riverview	Fine-loamy, mixed, active, thermic Fluventic Dystrudepts
Roanoke	Fine, mixed, semiactive, thermic Typic Endoaquults
Rumford	Coarse-loamy, siliceous, subactive, thermic Typic Hapludults
Slagle	Fine-loamy, siliceous, subactive, thermic Aquic Hapludults
State	Fine-loamy, mixed, semiactive, thermic Typic Hapludults
Suffolk	Fine-loamy, siliceous, semiactive, thermic Typic Hapludults
Tarboro	Mixed, thermic Typic Udipsamments
Tomotley	Fine-loamy, mixed, semiactive, thermic Typic Endoaquults
Udorthents	Udorthents
Wateree	Coarse-loamy, mixed, semiactive, thermic Ruptic-Ultic Dystrochrepts
Wehadkee	Fine-loamy, mixed, active, nonacid, thermic Fluvaquentic Endoaquepts
Wickham	Fine-loamy, mixed, semiactive, thermic Typic Hapludults

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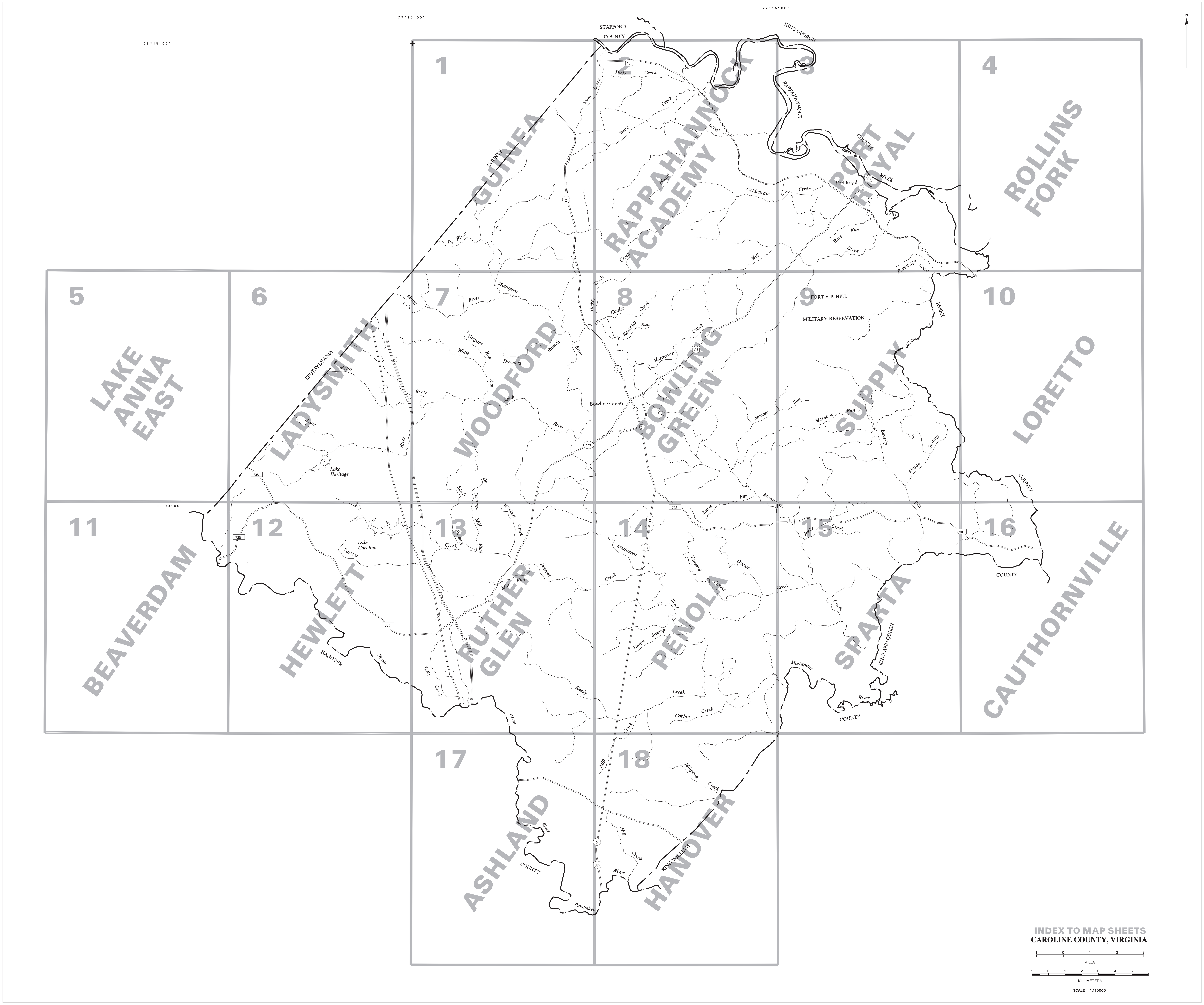
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3 PORT ROYAL
4 ROLLINS FORK
5 LAKE ANNA EAST
6 LADYSMITH
7 WOODFORD
8 BOWLING GREEN
9 SUPPLY
10 LORETTO
11 BEAVERDAM
12 HEWLETT
13 RUTHER GLEN
14 PENOLA
15 SPARTA
16 CAUTHORNVILLE
17 ASHLAND
18 HANOVER
STAFFORD COUNTY
KING GEORGE
RAPPAHANNOCK
COUNTY
RIVER
SPOTSYLVANIA
ESSEX
HANOVER
KING WILLIAM
KING AND QUEEN
COUNTY
Port Royal
Bowling Green
FORT A.P. HILL
MILITARY RESERVATION
Lake Caroline
Lake Heritage
Goldenvale
Mattaponi River
Po River
North Anna River
Pamunkey River
INDEX TO MAP SHEETS
CAROLINE COUNTY, VIRGINIA
MILES
KILOMETERS
SCALE = 1:110000

SOIL LEGEND

Map symbols consist of a combination of numbers and letters. The numbers are listed numerically and represent the kind of soil or soils in the map unit. A capital letter indicates the slope class. Water is the only map unit that is represented by a single capital letter.

SYMBOL	NAME
1A	Altavista fine sandy loam, 0 to 2 percent slopes, very rarely flooded
1B	Altavista fine sandy loam, 2 to 6 percent slopes, very rarely flooded
2B	Appling sandy loam, 2 to 7 percent slopes
2C	Appling sandy loam, 7 to 15 percent slopes
3A	Bama sandy loam, 0 to 2 percent slopes
3B	Bama sandy loam, 2 to 6 percent slopes
4A	Bibb-Chastain complex, 0 to 2 percent slopes, frequently flooded
5B	Bojac sandy loam, 0 to 6 percent slopes, very rarely flooded
6B	Cecil sandy loam, 2 to 7 percent slopes
7A	Chastain silt loam, 0 to 2 percent slopes, ponded
8A	Chewacla silt loam, 0 to 2 percent slopes, occasionally flooded
9C	Helena-Appling complex, 2 to 15 percent slopes
10E	Kempsville-Emporia-Remlik complex, 15 to 50 percent slopes
11A	Kempsville-Emporia complex, 0 to 2 percent slopes
11B	Kempsville-Emporia complex, 2 to 6 percent slopes
11C	Kempsville-Emporia complex, 6 to 10 percent slopes
12A	Myatt-Slagle complex, 0 to 2 percent slopes
13E	Nevarc sandy loam, 15 to 50 percent slopes
14	Pits, gravel, 0 to 3 percent slopes
15A	Rappahannock muck, 0 to 1 percent slopes, frequently flooded
16B	Remlik loamy sand, 2 to 6 percent slopes
16C	Remlik loamy sand, 6 to 15 percent slopes
16E	Remlik loamy sand, 15 to 50 percent slopes
17D	Rion sandy loam, 15 to 25 percent slopes
18A	Riverview silt loam, 0 to 2 percent slopes, occasionally flooded
19A	Roanoke loam, 0 to 2 percent slopes, rarely flooded
20B	Rumford loamy sand, 0 to 6 percent slopes
20C	Rumford loamy sand, 6 to 10 percent slopes
20D	Rumford loamy sand, 10 to 15 percent slopes
21C	Slagle-Kempsville complex, 2 to 15 percent slopes
22A	Slagle fine sandy loam, 0 to 2 percent slopes
22B	Slagle fine sandy loam, 2 to 6 percent slopes
23A	State fine sandy loam, 0 to 2 percent slopes, very rarely flooded
23B	State fine sandy loam, 2 to 6 percent slopes, very rarely flooded
23C	State fine sandy loam, 6 to 10 percent slopes, very rarely flooded
24A	Suffolk fine sandy loam, 0 to 2 percent slopes
24B	Suffolk fine sandy loam, 2 to 6 percent slopes
25B	Tarboro-Bojac complex, 0 to 6 percent slopes, very rarely flooded
26A	Tomotley-Roanoke complex, 0 to 2 percent slopes, rarely flooded
27C	Udorthents, loamy, 0 to 15 percent slopes
28A	Wehadkee silt loam, 0 to 2 percent slopes, frequently flooded
29A	Wickham fine sandy loam, 0 to 2 percent slopes, very rarely flooded
29B	Wickham fine sandy loam, 2 to 6 percent slopes, very rarely flooded
30E	Wateree-Rock outcrop complex, 25 to 70 percent slopes
W	Water

CONVENTIONAL AND SPECIAL SYMBOLS LEGEND

CULTURAL FEATURES

BOUNDARIES

- National, state, or province
- County or parish
- Minor civil division
- Limit of soil survey (label) and/or denied access area
- Field sheet matchline and neatline

ROAD EMBLEMS AND DESIGNATIONS

- Interstate 173
- Federal 287
- State 52

AD HOC BOUNDARY

- Cemetery

RAILROAD

DAMS

- Medium or Small

HYDROGRAPHIC FEATURES

STREAMS

- Perennial, double line
- Unclassified

SPECIAL SYMBOLS FOR SOIL SURVEY AND SSURGO

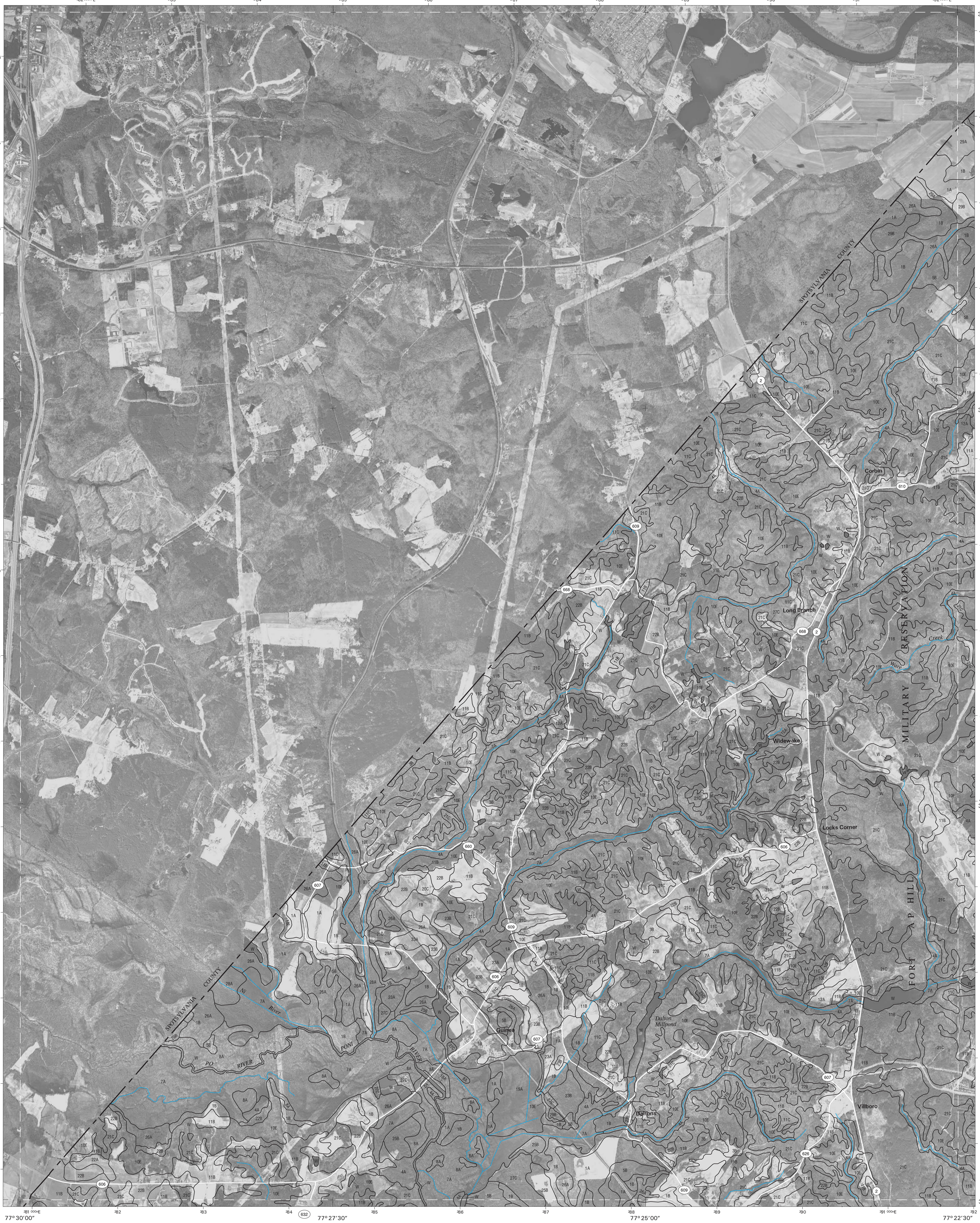
SOIL DELINEATIONS AND SYMBOLS 1A 4A

MISCELLANEOUS SURFACE FEATURES

- Gravel pit

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

CAROLINE COUNTY, VIRGINIA
GUINEA QUADRANGLE
SHEET NUMBER 1 OF 18



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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 18. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

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FEET

1 0 1
KILOMETERS

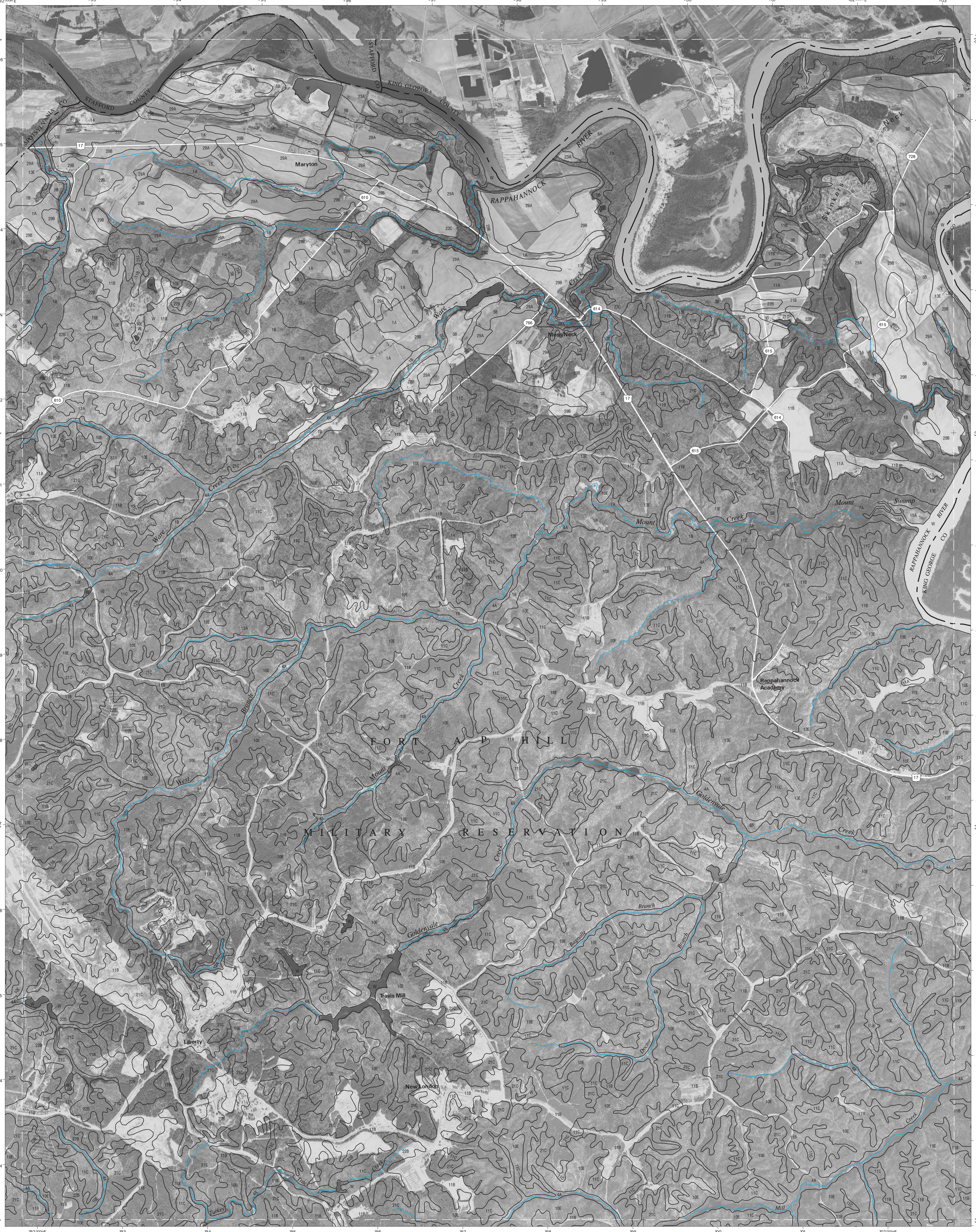
INDEX TO ADJOINING 7.5 MAPS
2 RAPPAHANNOCK ACADEMY
6 LADYSMITH
7 WOODFORD
8 BOWLING GREEN

GUINEA, VIRGINIA
7.5 MINUTE SERIES
SHEET NUMBER 1 OF 18

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

CAROLINE COUNTY, VIRGINIA
RAPPAHANNOCK ACADEMY QUADRANGLE (OVERSIZED)
SHEET NUMBER 2 OF 18



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NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

INDEX TO ADJOINING 7.5 MAPS

1 GUINEA
3 PORT ROYAL
7 WOODFORD
8 BOWLING GREEN
9 SUPPLY

RAPPAHANNOCK ACADEMY, (OVERSIZED) VIRGINIA

7.5 MINUTE SERIES

SHEET NUMBER 2 OF 18

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

CAROLINE COUNTY, VIRGINIA
PORT ROYAL QUADRANGLE (OVERSIZED)
SHEET NUMBER 3 OF 18

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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 18. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

2 RAPPAHANNOCK ACADEMY
4 ROLLINS FORK
8 BOWLING GREEN
9 SUPPLY
10 LORETTO

INDEX TO ADJOINING 7.5 MAPS

PORT ROYAL, (OVERSIZED) VIRGINIA
7.5 MINUTE SERIES
SHEET NUMBER 3 OF 18

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

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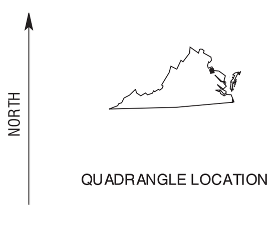
North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 18. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



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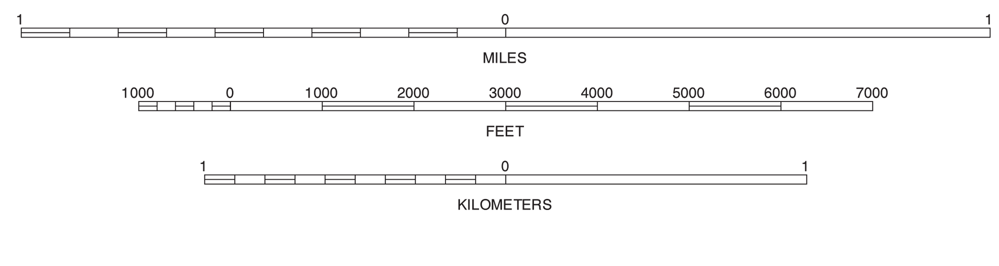

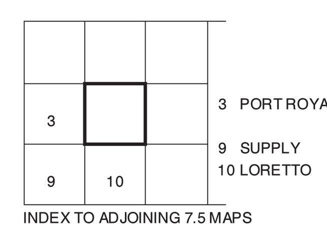

INDEX TO ADJOINING 7.5 MAPS

ROLLINS FORK, VIRGINIA
7.5 MINUTE SERIES
SHEET NUMBER 4 OF 18

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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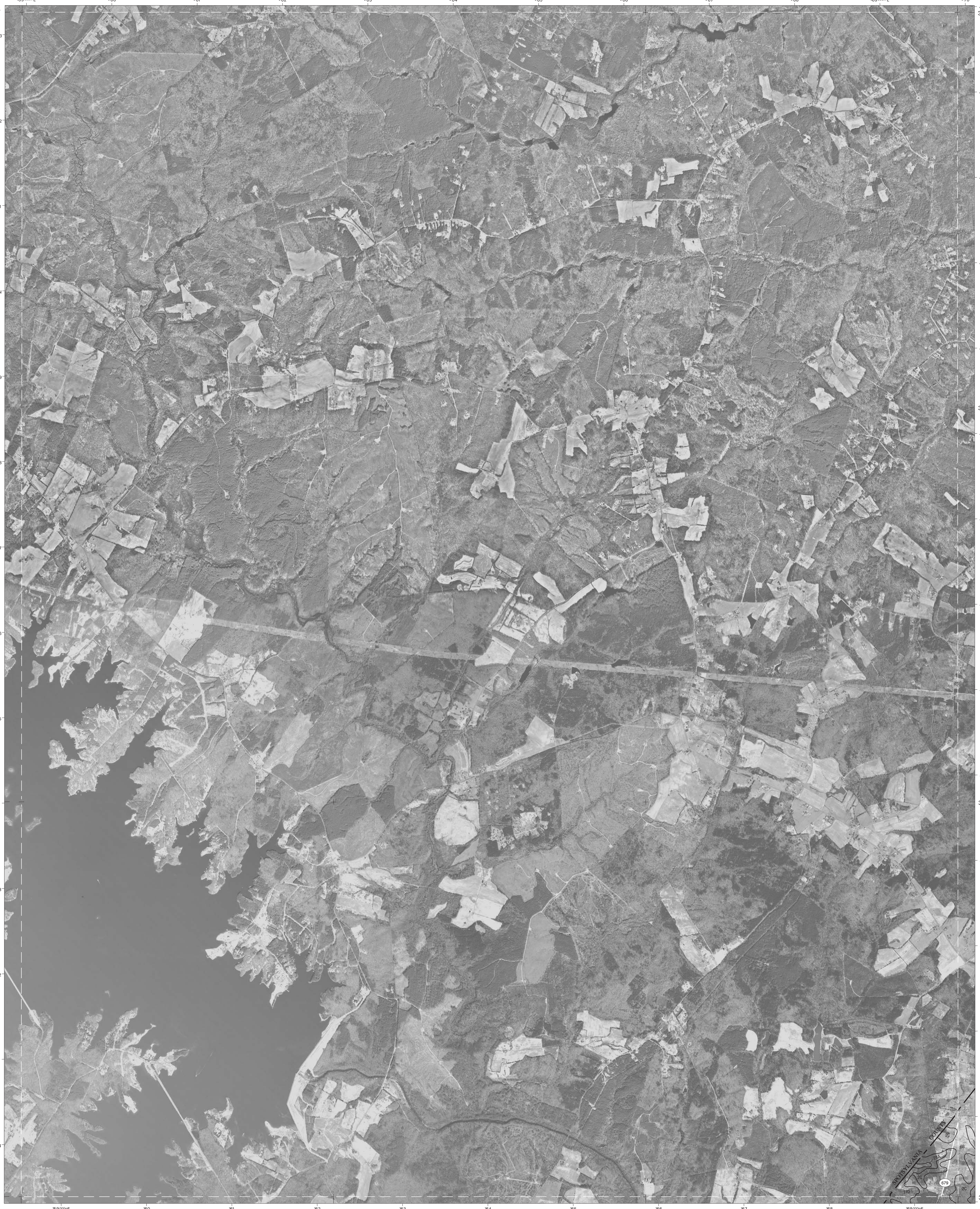
38° 07′30″

38° 05′00″

38° 02′30″

38° 00′00″



77° 45′00″ 77° 42′30″ 77° 40′00″ 77° 37′30″

Joins sheet 6, Ladysmith

Joins sheet 11, Beaverdam

Joins sheet 12, Hewlett

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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 18. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

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MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

6 LADYSMITH
11 BEAVERDAM
12 HEWLETT

INDEX TO ADJOINING 7.5 MAPS

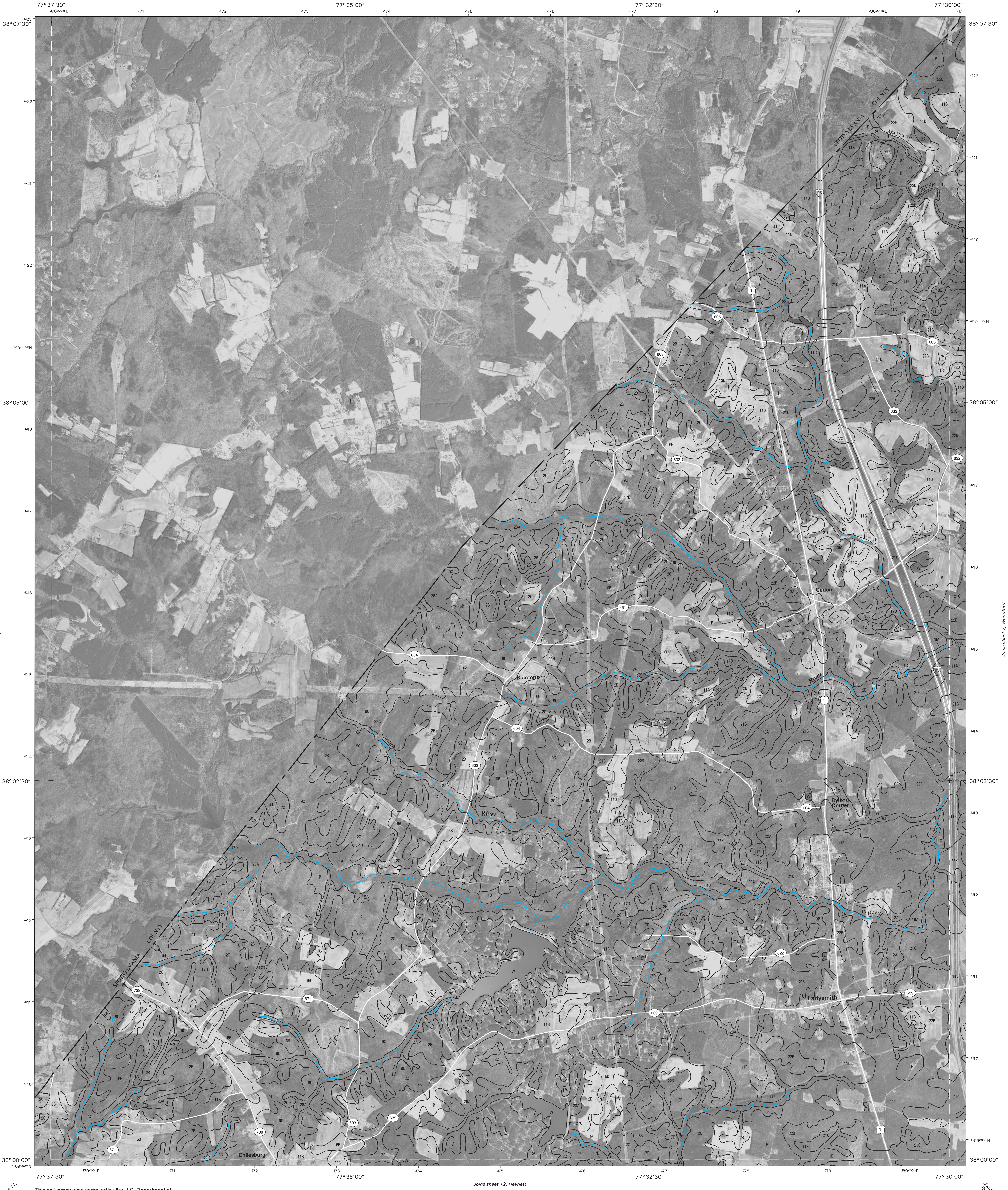
LAKE ANNA EAST, VIRGINIA

7.5 MINUTE SERIES
SHEET NUMBER 5 OF 18

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

CAROLINE COUNTY, VIRGINIA
LADYSMITH QUADRANGLE
SHEET NUMBER 6 OF 18



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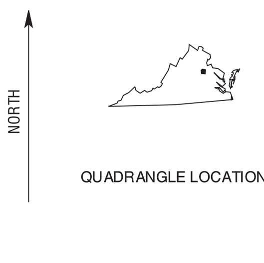
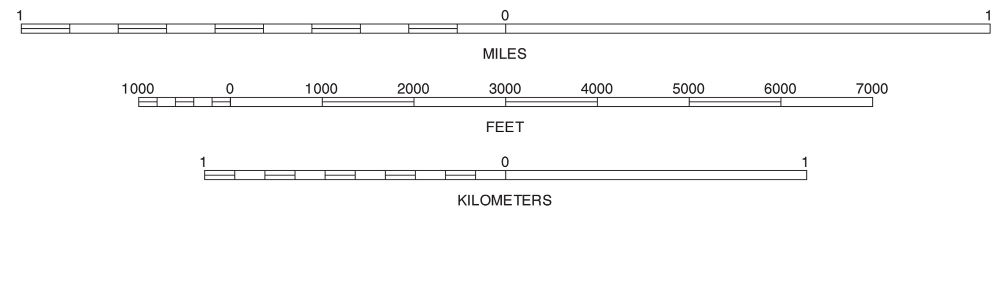
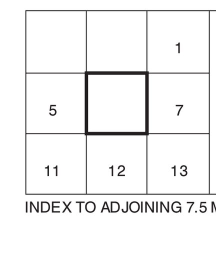
North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 18. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION

SCALE 1:24000





1 GUINEA
5 LAKE ANNA EAST
7 WOODFORD
11 BEAVERDAM
12 HEWLETT
13 RUTHER GLEN

INDEX TO ADJOINING 7.5 MAPS

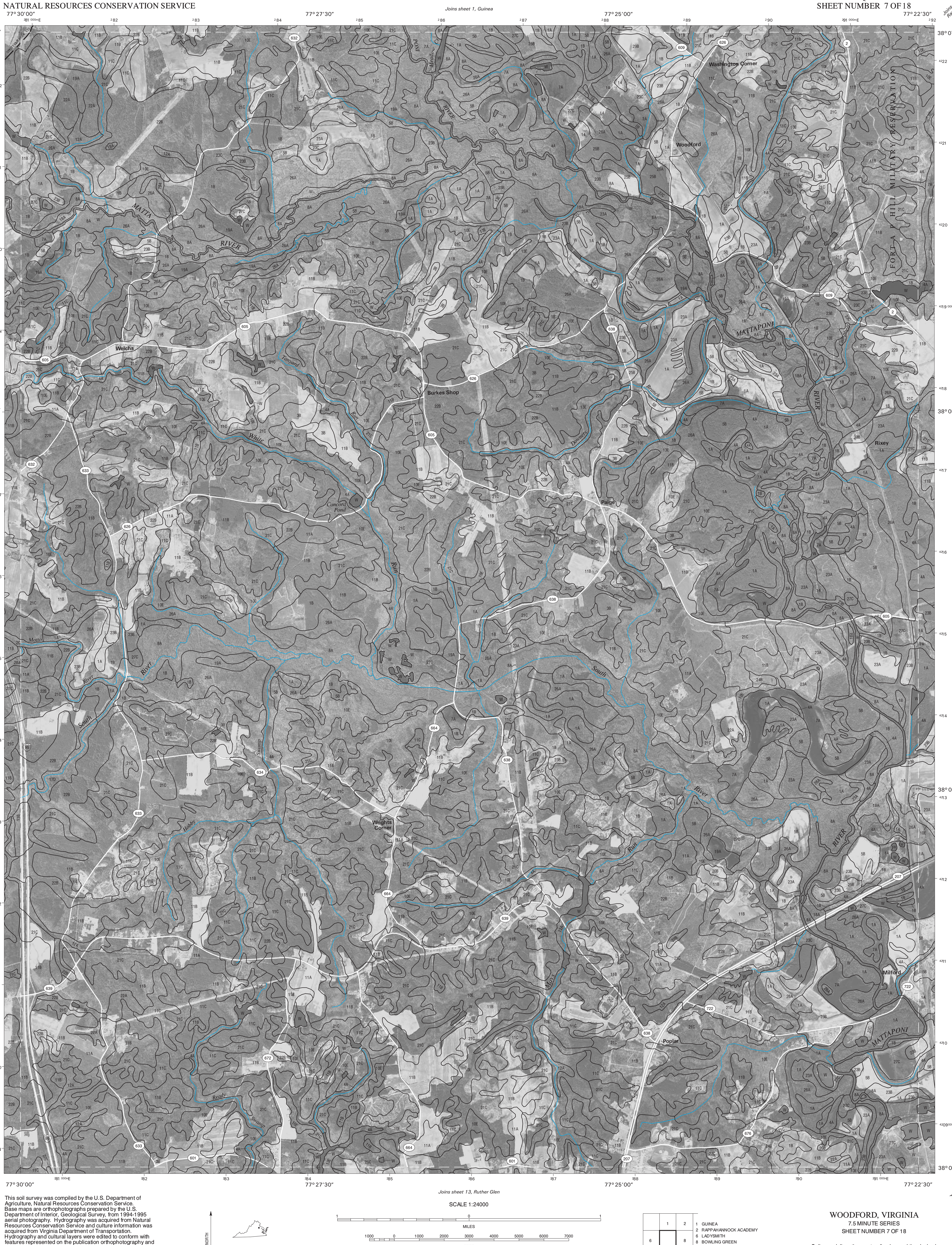
LADYSMITH, VIRGINIA

7.5 MINUTE SERIES
SHEET NUMBER 6 OF 18

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

CAROLINE COUNTY, VIRGINIA
WOODFORD QUADRANGLE
SHEET NUMBER 7 OF 18



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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 18. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

	1	2
6		8
12	13	14

1 GUINEA
2 RAPPAHANNOCK ACADEMY
6 LADYSMITH
8 BOWLING GREEN
12 HEWLETT
13 RUTHER GLEN
14 PENOLA

INDEX TO ADJOINING 7.5 MAPS

WOODFORD, VIRGINIA

7.5 MINUTE SERIES
SHEET NUMBER 7 OF 18

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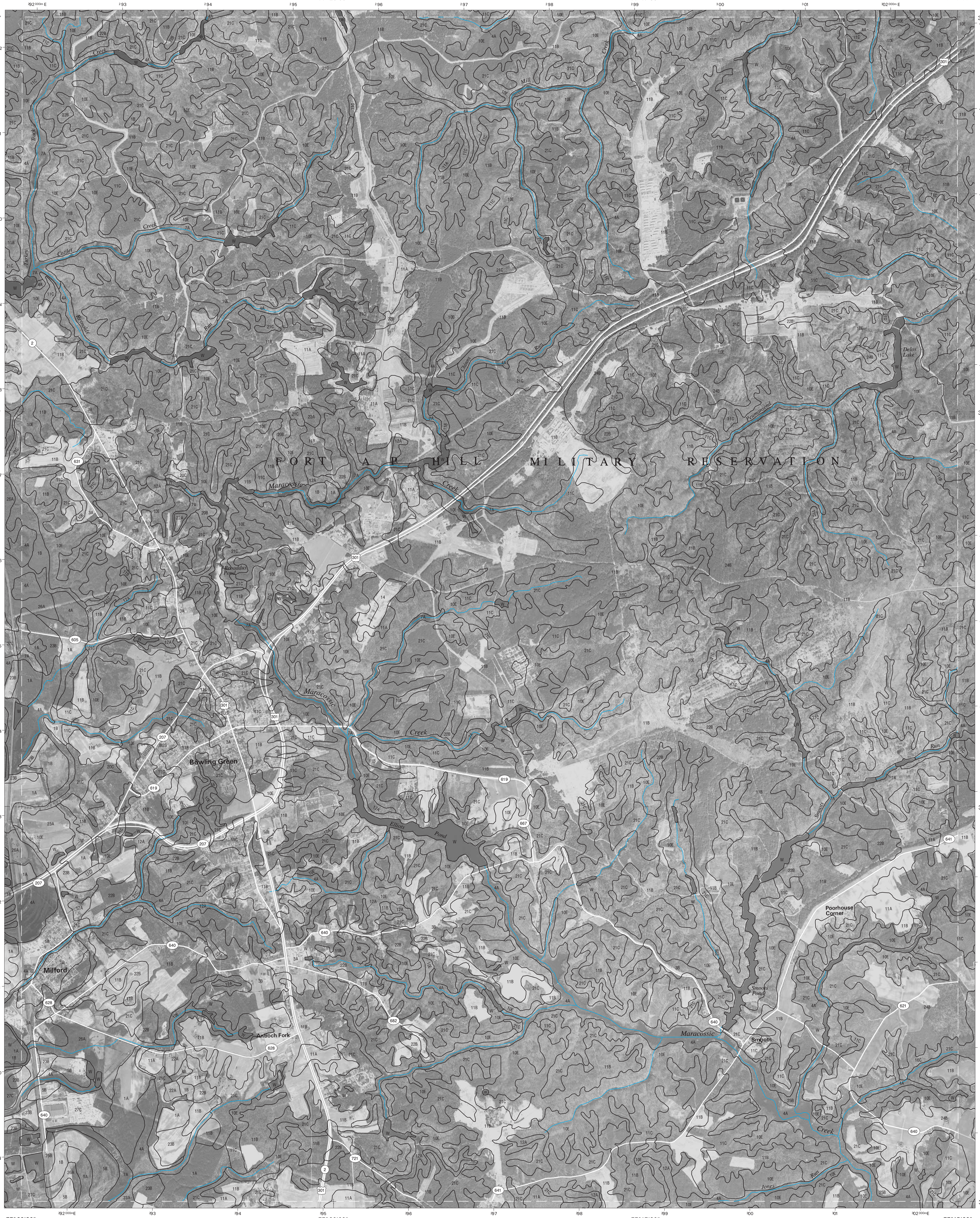
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

CAROLINE COUNTY, VIRGINIA
BOWLING GREEN QUADRANGLE
SHEET NUMBER 8 OF 18



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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 18. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

1	2	3
7		9
13	14	15

1 GUINEA
2 RAPPAHANNOCK ACADEMY
3 PORT ROYAL
7 WOODFORD
9 SUPPLY
13 RUTHER GLEN
14 PENOLA
15 SPARTA

INDEX TO ADJOINING 7.5 MAPS

BOWLING GREEN, VIRGINIA
7.5 MINUTE SERIES
SHEET NUMBER 8 OF 18

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UNITED STATES
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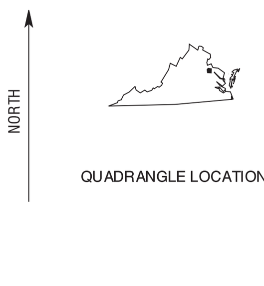
NATURAL RESOURCES CONSERVATION SERVICE

CAROLINE COUNTY, VIRGINIA
SUPPLY QUADRANGLE
SHEET NUMBER 9 OF 18

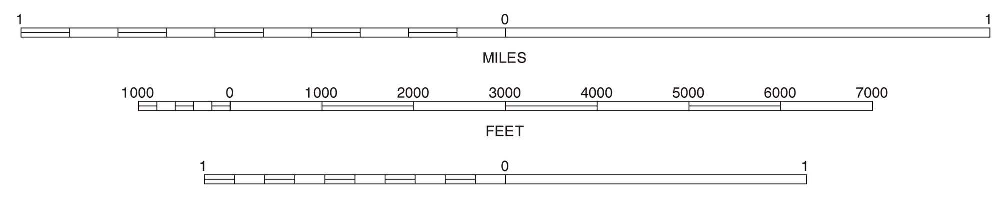
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1994-1995 aerial photography. Hydrography was acquired from Natural Resources Conservation Service and culture information was acquired from Virginia Department of Transportation. Hydrography and cultural layers were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 18. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION

SCALE 1:24000



2	3	4
8		10
14	15	16

2 RAPPAHANNOCK ACADEMY
3 PORT ROYAL
4 ROLLINS FORK
8 BOWLING GREEN
10 LORETTO
14 PENOLA
15 SPARTA
16 CAUTHORNVILLE

INDEX TO ADJOINING 7.5 MAPS

SUPPLY, VIRGINIA

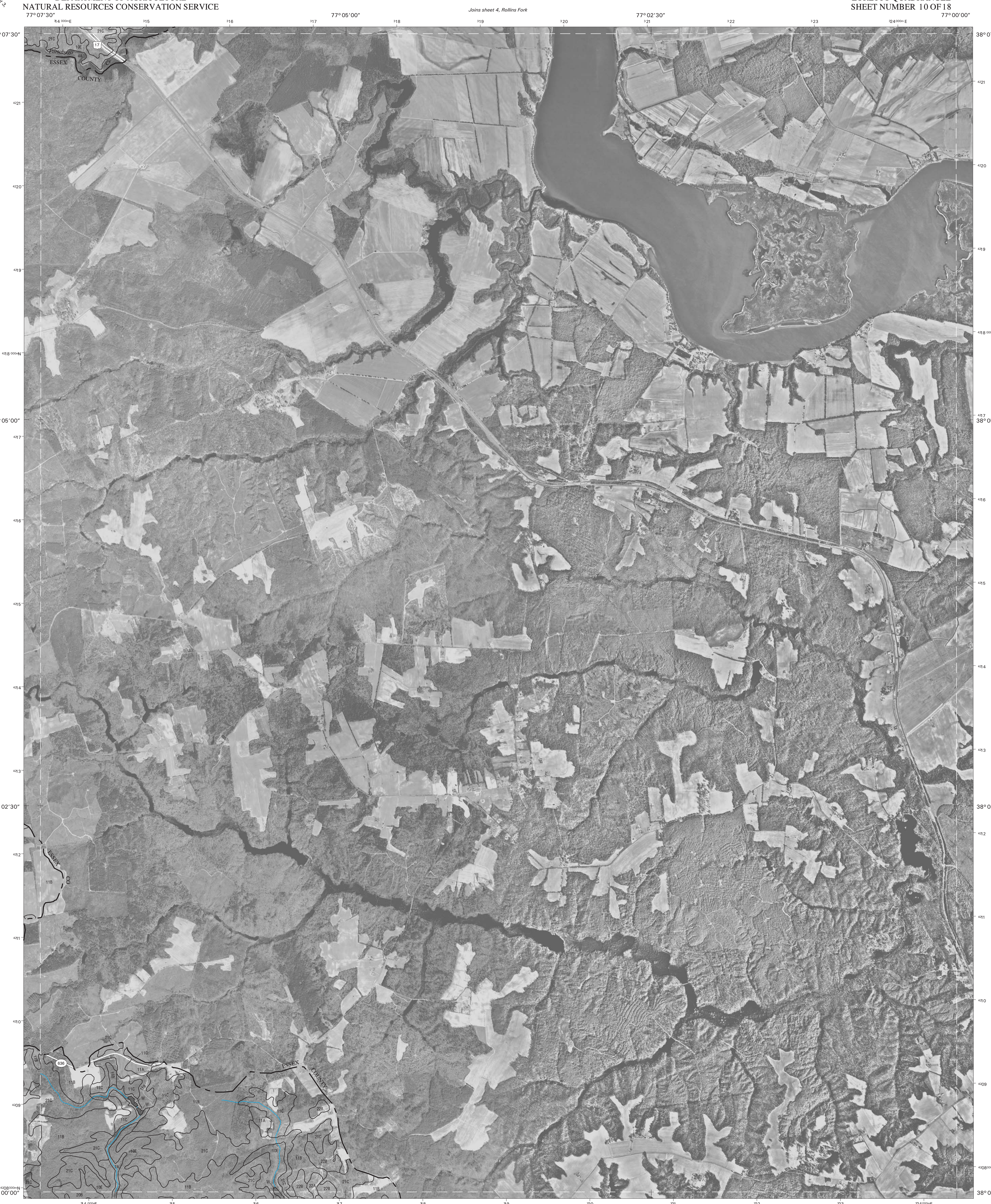
7.5 MINUTE SERIES
SHEET NUMBER 9 OF 18

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

CAROLINE COUNTY, VIRGINIA
LORETTO QUADRANGLE
SHEET NUMBER 10 OF 18

Joins sheet 4, Rollins Fork



Joins sheet 16, Cauthornville

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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 18. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

3	4		3 PORT ROYAL 4 ROLLINS FORK
9			9 SUPPLY
15	16		15 SPARTA 16 CAUTHORNVILLE

INDEX TO ADJOINING 7.5 MAPS

LORETTO, VIRGINIA
7.5 MINUTE SERIES
SHEET NUMBER 10 OF 18

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UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

CAROLINE COUNTY, VIRGINIA
BEAVERDAM QUADRANGLE
SHEET NUMBER 11 OF 18

Joins sheet 5, Lake Anna East

Joins sheet 6, Ladysmith

Joins sheet 12, Hewlett

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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 18. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

	5	6
		12

5 LAKE ANNA EAST
6 LADYSMITH
12 HEWLETT

INDEX TO ADJOINING 7.5 MAPS

BEAVERDAM, VIRGINIA
7.5 MINUTE SERIES
SHEET NUMBER 11 OF 18

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UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

CAROLINE COUNTY, VIRGINIA
HEWLETT QUADRANGLE
SHEET NUMBER 12 OF 18

Joins sheet 5, Lake Anna East

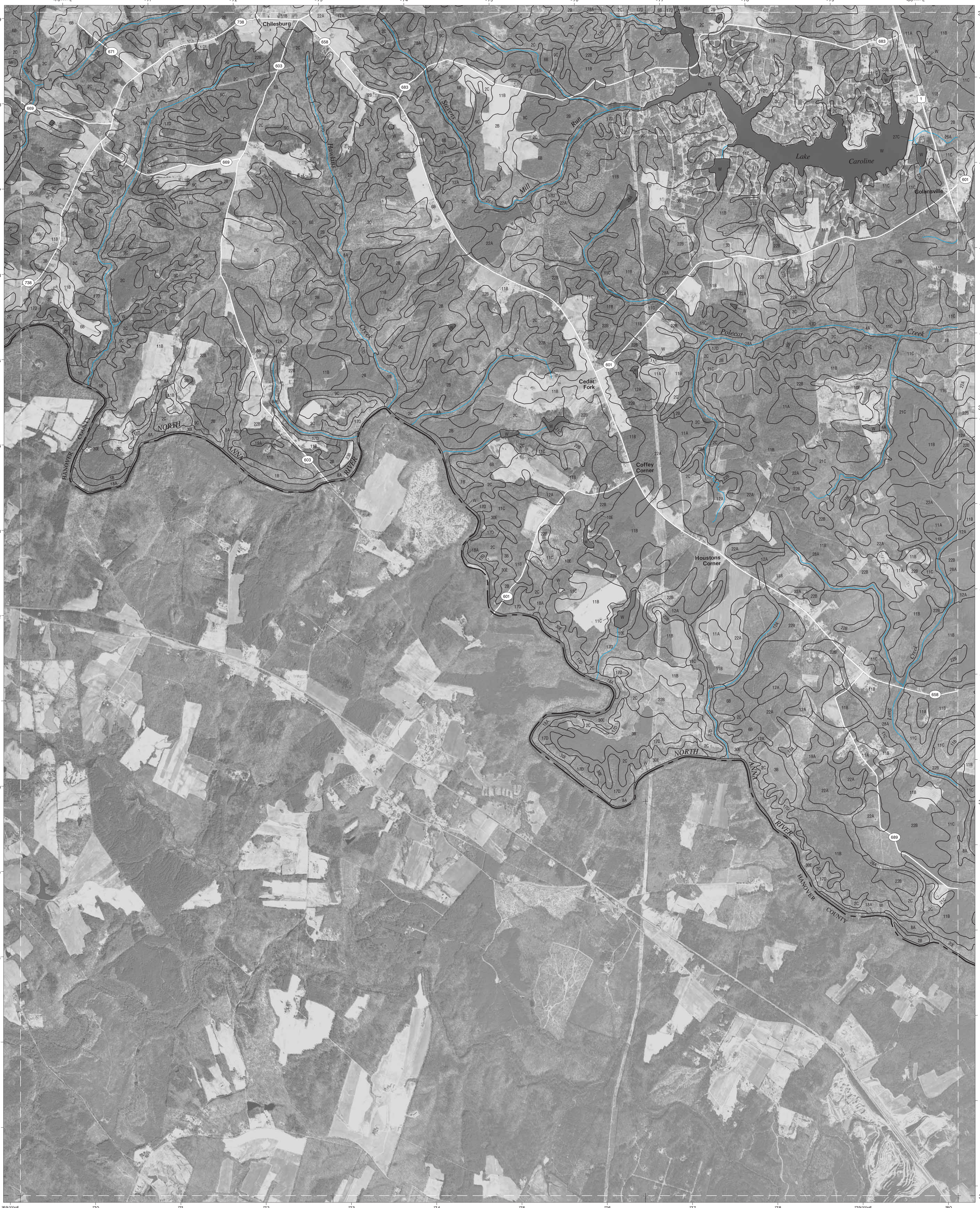
Joins sheet 6, Ladysmith

Joins sheet 7, Woodford

Joins sheet 11, Beaverdam

Joins sheet 13, Ruther Glen

Joins sheet 17, Ashland



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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 18. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES: 1 0 1

FEET: 1000 0 1000 2000 3000 4000 5000 6000 7000

KILOMETERS: 1 0 1

5	6	7
11		13
		17

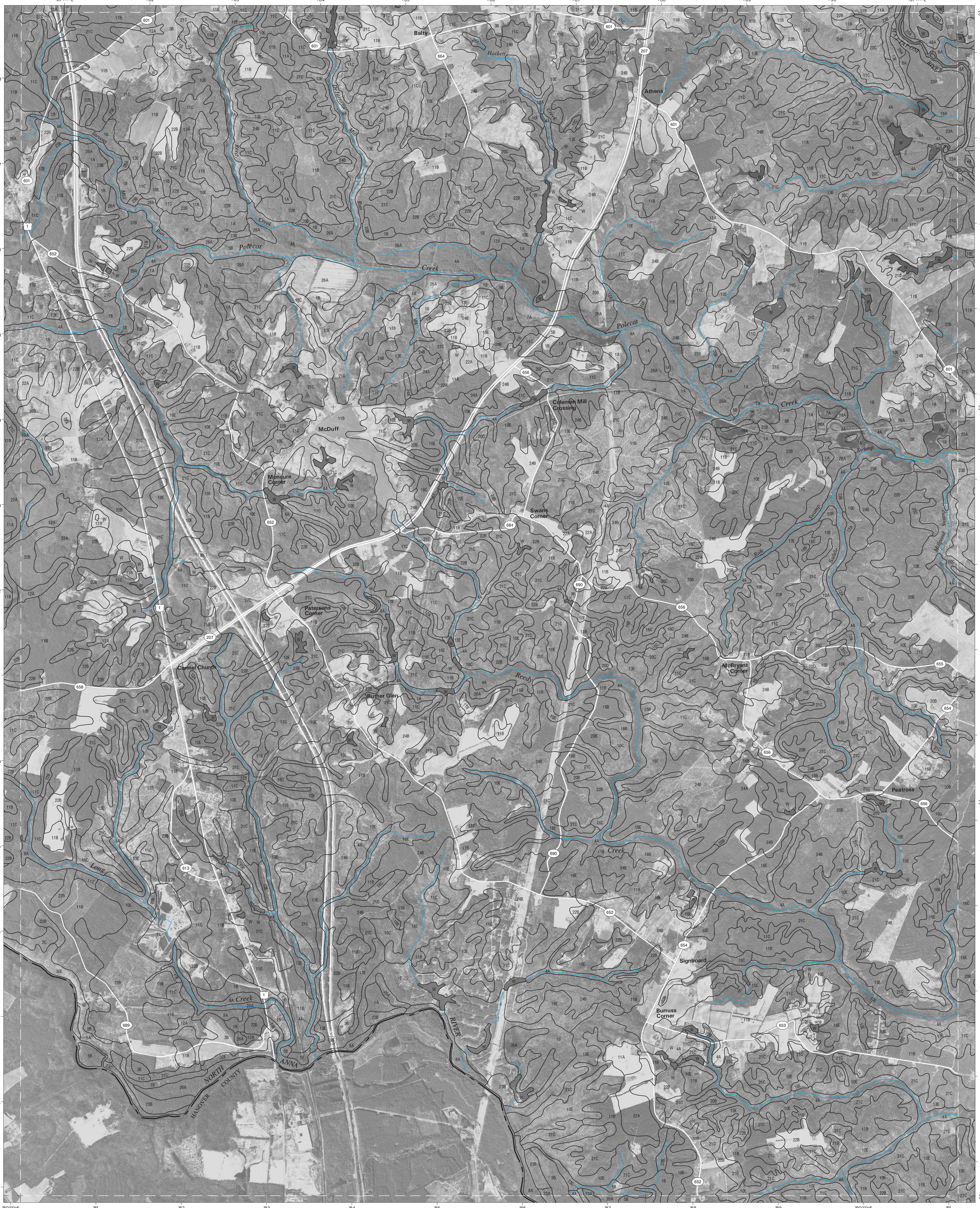
5 LAKE ANNA EAST
6 LADYSMITH
7 WOODFORD
11 BEAVERDAM
13 RUTHER GLEN
17 ASHLAND

INDEX TO ADJOINING 7.5 MAPS

HEWLETT, VIRGINIA

7.5 MINUTE SERIES
SHEET NUMBER 12 OF 18

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.



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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 18. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

6	7	8
12		14
	17	18

6 LADYSMITH
7 WOODFORD
8 BOWLING GREEN
12 HEWLETT
14 PENOLA
17 ASHLAND
18 HANOVER

INDEX TO ADJOINING 7.5 MAPS

RUTHER GLEN, VIRGINIA
7.5 MINUTE SERIES
SHEET NUMBER 13 OF 18

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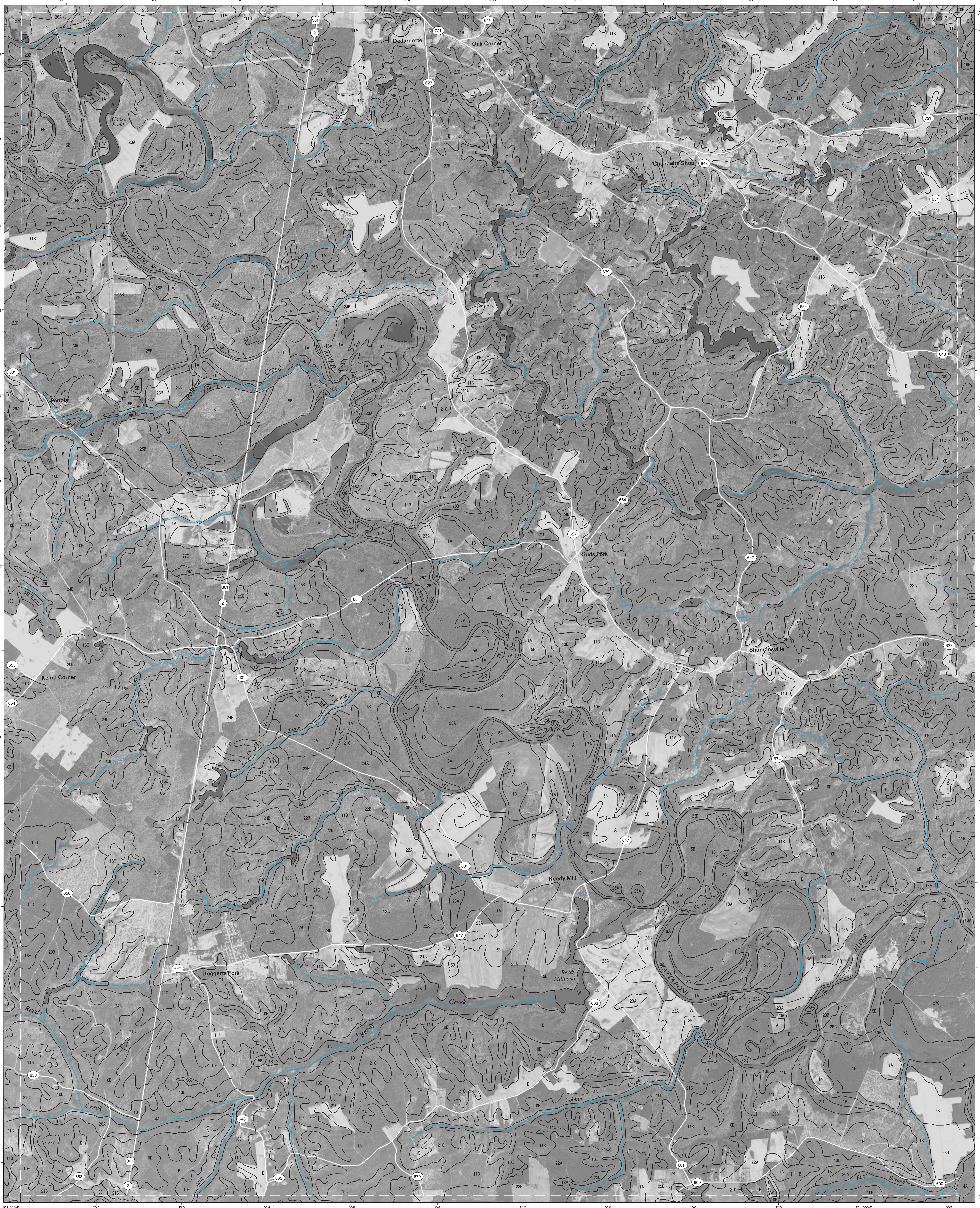
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

CAROLINE COUNTY, VIRGINIA
PENOLA QUADRANGLE
SHEET NUMBER 14 OF 18



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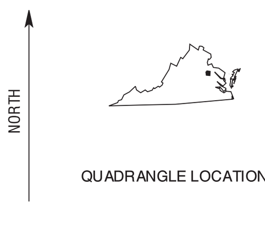

QUADRANGLE LOCATION

SCALE 1:24000

MILES: 1 0 1

FEET: 1000 0 1000 2000 3000 4000 5000 6000 7000

KILOMETERS: 1 0 1

7	8	9
13		15
17	18	

7 WOODFORD
8 BOWLING GREEN
9 SUPPLY
13 RUTHER GLEN
15 SPARTA
17 ASHLAND
18 HANOVER

INDEX TO ADJOINING 7.5 MAPS

PENOLA, VIRGINIA
7.5 MINUTE SERIES
SHEET NUMBER 14 OF 18

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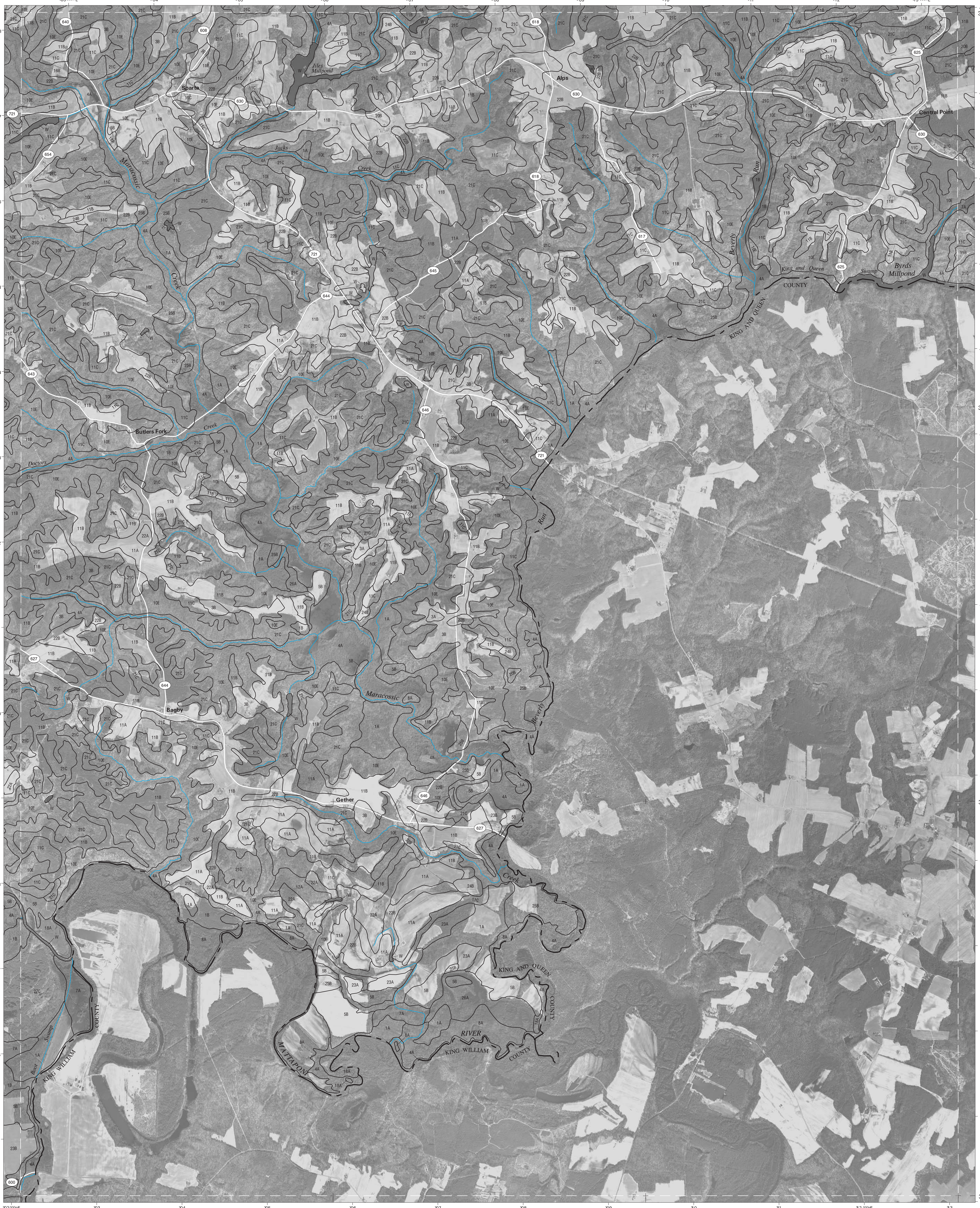
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

CAROLINE COUNTY, VIRGINIA
SPARTA QUADRANGLE
SHEET NUMBER 15 OF 18

Joins sheet 8, Bowling Green
Joins sheet 9, Supply
Joins sheet 10, Loretto



Joins sheet 14, Penola
Joins sheet 16, Cauthornville
Joins sheet 18, Hanover

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NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

8	9	10
14		16
18		

8 BOWLING GREEN
9 SUPPLY
10 LORETTO
14 PENOLA
16 CAUTHORNVILLE
18 HANOVER

INDEX TO ADJOINING 7.5 MAPS

SPARTA, VIRGINIA

7.5 MINUTE SERIES
SHEET NUMBER 15 OF 18

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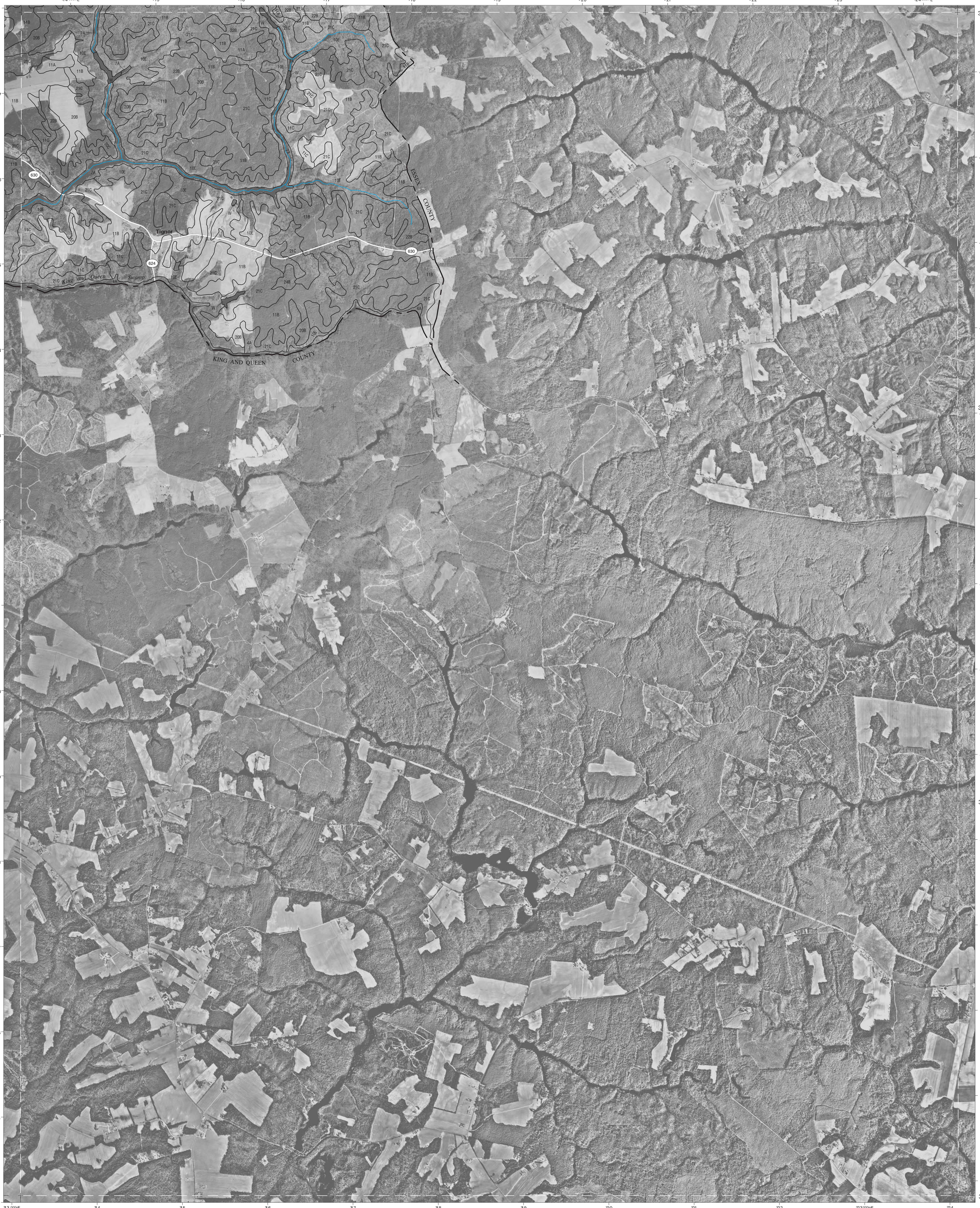
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

CAROLINE COUNTY, VIRGINIA
CAUTHORNVILLE QUADRANGLE
SHEET NUMBER 16 OF 18



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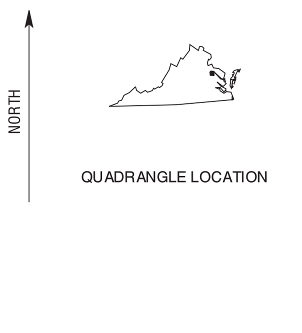

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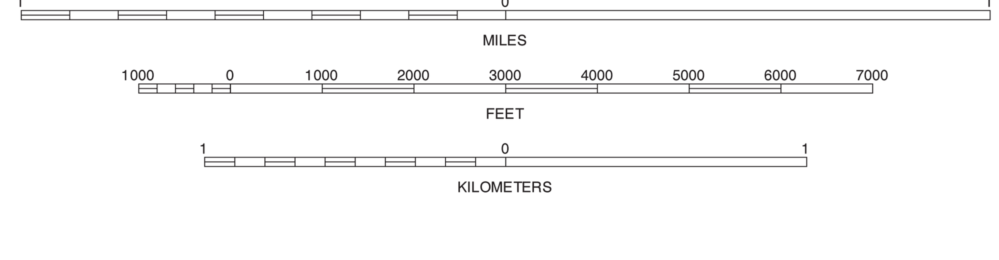

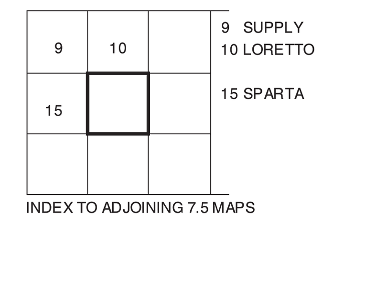

CAUTHORNVILLE, VIRGINIA
7.5 MINUTE SERIES
SHEET NUMBER 16 OF 18

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UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

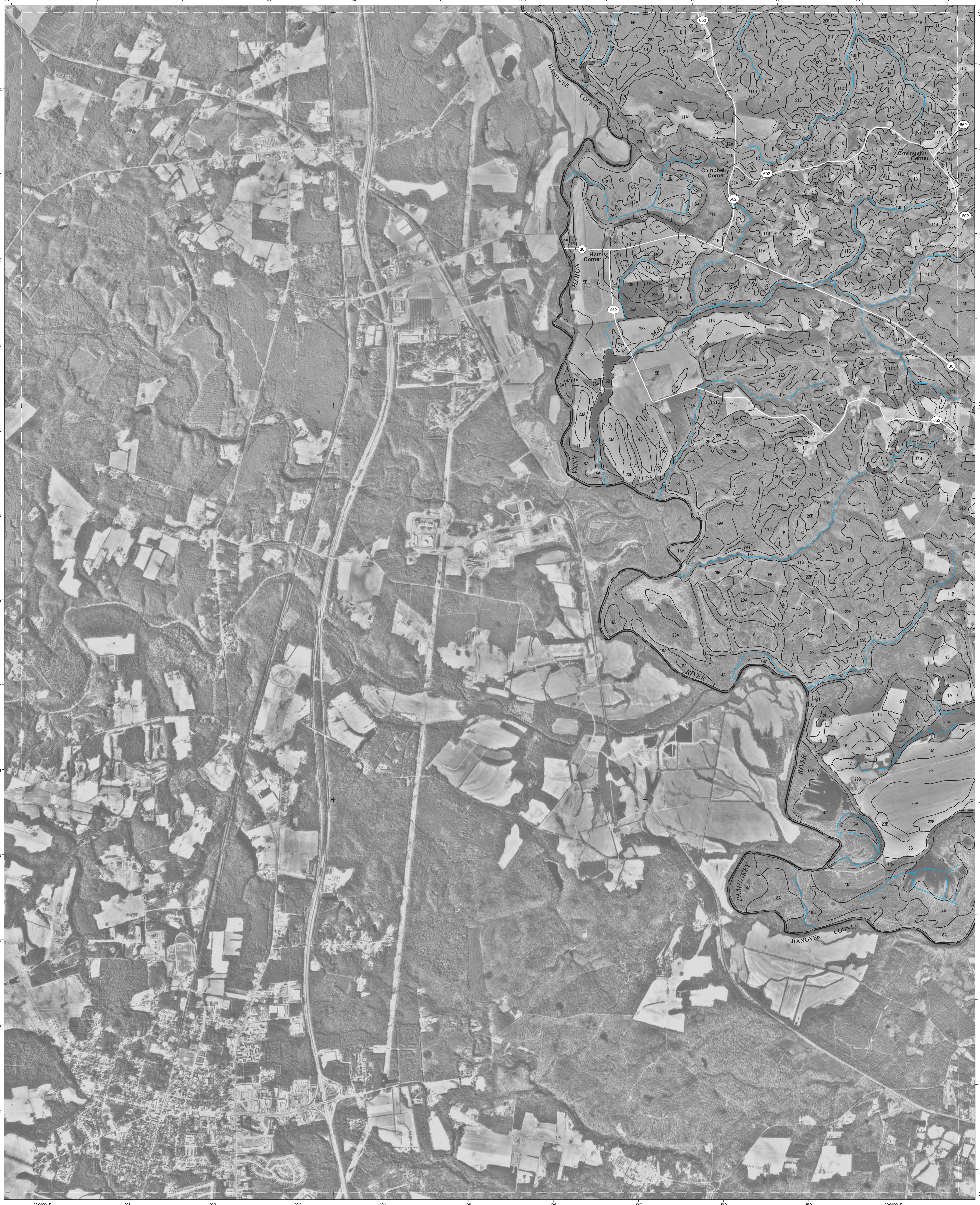
CAROLINE COUNTY, VIRGINIA
ASHLAND QUADRANGLE
SHEET NUMBER 17 OF 18

Joins sheet 12, Hewlett

Joins sheet 13, Ruther Glen

Joins sheet 14, Penola

Joins sheet 18, Hanover



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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 18. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1 MILES

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 0 1 KILOMETERS

12	13	14	12 HEWLETT 13 RUTHER GLEN 14 PENOLA
		18	18 HANOVER

INDEX TO ADJOINING 7.5 MAPS

ASHLAND, VIRGINIA
7.5 MINUTE SERIES
SHEET NUMBER 17 OF 18

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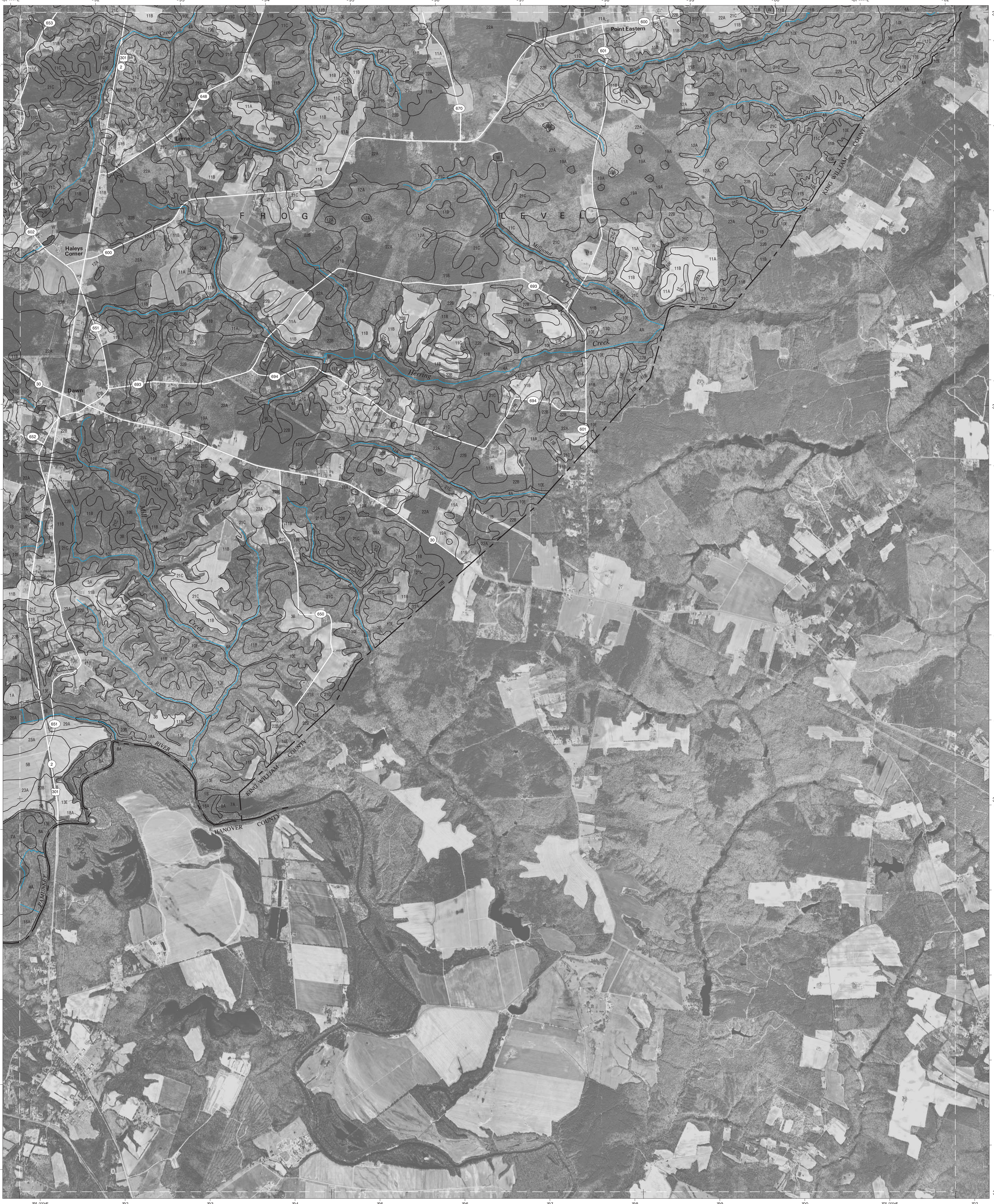
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

CAROLINE COUNTY, VIRGINIA
HANOVER QUADRANGLE (OVERSIZED)
SHEET NUMBER 18 OF 18



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NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

13 RUTHER GLEN
14 PENOLA
15 SPARTA
17 ASHLAND

INDEX TO ADJOINING 7.5 MAPS

HANOVER, (OVERSIZED) VIRGINIA
7.5 MINUTE SERIES
SHEET NUMBER 18 OF 18

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